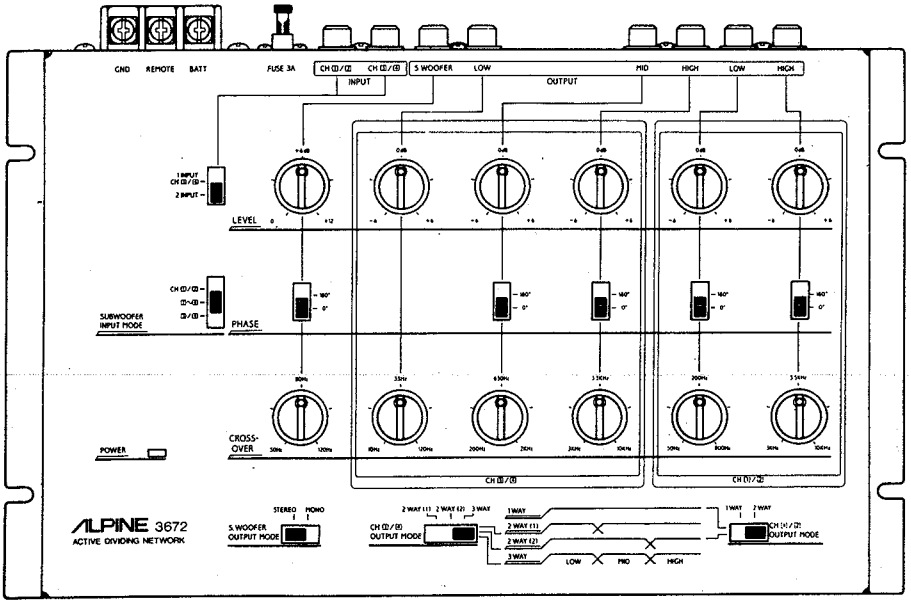
ALPINE SERVICE MANUAL

Active Dividing Network



3672

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Additional Schematic Diagram Inserted.

Specifications

Frequency Responce (-1dB)	20Hz~30kHz
Current Drain	350mA
Signal to Noise Ratio	80dB
Distortion (From 20Hz to 20kHz)	0.1%
Channel Separation (From 20Hz to 20kHz)	LOW (1・2ch) / MID / HIGH : 40dB
	LOW (3・4ch) / Sub Woofer : 60dB
Sensitivity	1・2ch / 3・4ch : 500mV ± 2dB
	Sub Woofer : 250mV ± 2dB
Input Impedance	10kohm
Output Voltage	500mV
Output Impedance	1kohm
Crossover Frequency Range (at -3dB)	Sub Woofer : 50-120Hz
	1・2ch LOW : 50Hz to 800Hz, 3kHz to 10kHz
	HIGH : 3kHz to 10kHz
	3・4ch LOW : 10Hz to 120Hz, 200Hz to 2kHz
	HIGH : 3kHz to 10kHz
	MID : 200Hz to 2kHz, 3kHz to 10kHz
Power Supply	DC14.4V
Semiconductors	26 IC's, 21 Transistors, 9 Diodes, 4 Zener Diodes
Dimensions (W × H × D)	240 × 40 × 160(mm)
Weight	1.3kg

Note : Due to continuing product improvement, specifications and designs are subject to change without notice.

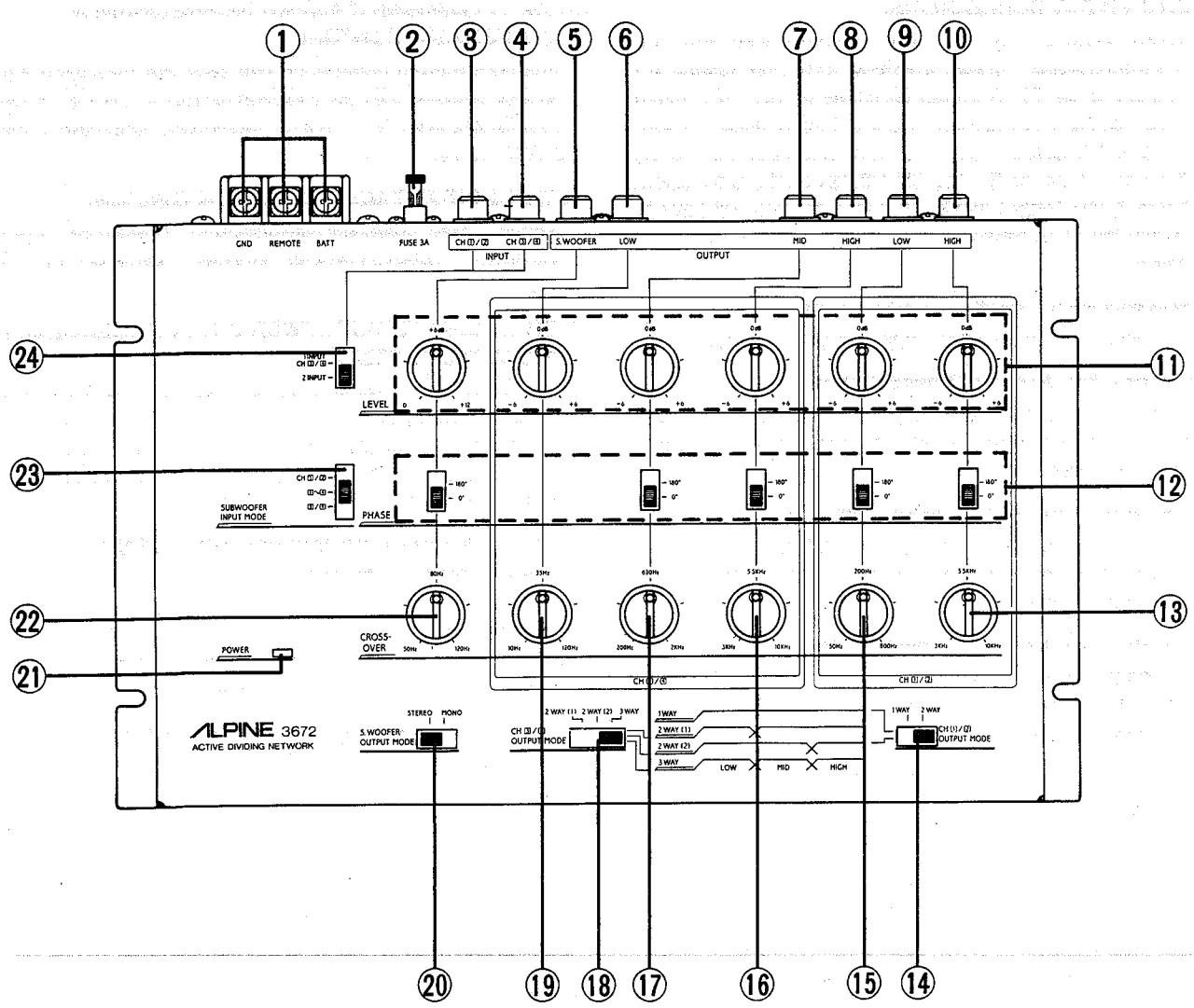
In Case of Difficulty

PROBLEM	POSSIBLE CAUSE & REMEDY
Remote-on light does not come on.	• Head unit is not on: turn the head unit on.
	• Ground wire is disconnected or defective: Check for continuity with an ohmmeter between 3672's Ground terminal and a known chassis ground point.
	• Battery wire is disconnected or defective: Check for approximately +12 volts between 3672's Battery and Ground terminals.
	• Blown Fuse: Check 3672's 3A Fuse, located near the Battery terminal. If it is blown, replace it with an identical one. If the new fuse blows immediately, then check all the wiring connections. If no fault is found, consult your Alpine dealer.
	• Remote-On wire between the head unit and the 3672 is disconnected or defective: Check for +12 volts between 3672's Remote-on connector and ground connector with the head unit on.
Remote-On light is on, but no sound is heard from some or all of the speakers.	• Incorrect Switch Settings: Make sure that all Mode Selector switches are in their correct positions for your system configuration (See Wiring and Set-up).
	• Defective or disconnected audio cables: check for continuity and replace if necessary.
	• Incorrect Output Level Adjustment: Verify that the 3672's output level controls are not turned completely counterclockwise. If they are, sound output level may be very low and may give the impression that the system (or part of the system) is dead.
	• Defective 3672: Bypass the 3672 by connecting its input and the dead output terminal's cables together (with a pair of Alpine 4401 female-to-female adapters). If the system becomes functional, the 3672 may be defective. Consult your Alpine dealer.
	• Defective Head Unit, or other audio component: Check each component for wiring and operation.
Alternator whine through the audio system with the engine running.	• Ground loops: Connect grounds of all audio components to the same point on the vehicle chassis. Verify that this point is a true ground by checking for continuity with an ohmmeter between the ground point and the battery's (–) terminal, and follow the grounding recommendations on page 11.
	• Shorted Signal and Chassis Grounds: Check for shorts between speaker leads and chassis ground, or input signal ground and chassis ground.
	• The other audio components may have insufficient filtering: They may need noise suppressor on their battery or ignition connections.
	• Check the vehicle's battery and voltage regulator.

Features

- **Capable of running a full system with front and rear channel fader. For examples of possible system applications.**
- **Fully configurable, 6-way signal division:** 6 outputs: 2 for CH 1/2 (Low and High), 3 for CH 3/4 (Low, Mid and High) and 1 Subwoofer.
- **Separate Front and Rear inputs.**
- **Independent circuitry and outputs for Front, Rear and Subwoofer.**
- **Continuously adjustable crossover frequencies.**
- **Selectable Non-fading (constant), Front-fading, or Rear-fading Subwoofer output.**
- **Independent crossover frequency adjustments for Subwoofer, Front Mid and Rear Low outputs:** allow for staggering or overlapping the outputs to emphasize certain frequencies or eliminate resonances.
- **Phase switches for the Subwoofer, CH 1/2 Low, CH 1/2 High, CH 3/4 Mid and CH 3/4 High outputs:** can be used to eliminate standing waves and system imaging problems.
- **DC-to-DC switching mode power supply:** provides the bipolar voltage required to reproduce the wide dynamic range necessary for excellent transient response. Also offers immunity to installation related noise.
- **Balanced Input Section:** for complete isolation of signal path from the vehicle's electrical system. Assures noise-free installation.
- **Stereo/Mono switch for the Subwoofer output:** allows the use of mono or single-speaker subwoofer systems.
- **Continuously variable output level controls for all outputs:** allow compensation for different speaker efficiencies, amplifier sensitivity and/or system frequency response shaping.
- **Compatible with the Alpine 4313 Remote Indash Subwoofer Level Control accessory.**
- **24K Gold-plated RCA Input/output Connectors:** for most accurate signal transmission, lowest loss possible, and immunity to signal deterioration that can be caused by corrosion in the connectors over time.
- **24K Gold-plated screw-down power connectors:** for optimum voltage, current transfer and excellent oxidization resistance.
- **High performance, low noise, audiophile quality active and passive components.**
- **Trunk-mount, hide-away unit adjusted at the time of installation (no user-adjustable controls).**
- **Remote-on indicator LED:** confirms operation of the unit.

Controls and Switches



1. POWER CONNECTORS:

Connect to Battery, Ground and Remote-On signals;

* The Battery terminal should be connected directly to the battery. Do not connect this terminal to the vehicle's electrical system wiring (such as dome-light circuit, etc.).
* The Ground terminal connection should be made to a clean, bare metal part of the vehicle's chassis (an already installed screw, if possible). Scrape off paint or corrosion from this grounding point.
* The Remote-On terminal should be connected to the remote turn-on wire or power antenna output from the head unit. This will allow the 3672 to turn on and off simultaneously with the head unit.

2. FUSE:

A 3A fuse protects the unit from damage. If the unit's remote-on light does not turn on, check this fuse. If the fuse has blown, replace it with a new one of the same value (do not use larger value fuses). If the fuse blows again, there is a problem with the wiring and/or the unit itself. Your Alpine dealer can identify and correct the problem.

3. CH 1/2 INPUT CONNECTORS:

When using a head unit with separate front and rear preamp outputs, connect the head unit's front output connectors to the CH 1/2 input terminals of the 3672 (make sure that the input selector is in the 2-input mode). If your head unit features one pre-out only, you must use the CH 3/4 input of the 3672. However, you will have to switch the Input Selector (page 7, item 24) to the 1-input mode.

4. CH 3/4 INPUT CONNECTORS:

When using a head unit with separate front and rear pre-amp outputs, connect the head unit's rear output connectors to the CH 3/4 input terminals of the 3672 (make sure that the Input selector is in the 2-input mode). If your head unit features one pre-out only, you must use the CH 3/4 input of the 3672. The CH 1/2 input will not be operational in the 1-input mode. In this case, you will have to switch the Input Selector (page 7, item 24) to the 1-input mode.

5. SUBWOOFER OUTPUT CONNECTOR:

Connect to the subwoofer amplifier input terminals.

6. CH 3/4 LOW OUTPUT CONNECTOR:

Connect to the rear mid-bass (3-WAY or 2-WAY (1) output modes) or midrange (2-WAY (2) output mode) amplifier input terminals.

7. CH 3/4 MID OUTPUT CONNECTOR:

Connect to the rear midrange (3-WAY output mode) or midrange/tweeter satellite (2-WAY (1) output mode) amplifier input terminals.

8. CH 3/4 HIGH OUTPUT CONNECTOR:

Connect to the rear tweeter (3-WAY or 2-WAY (2) output modes) amplifier input terminals. This output is not used in 2-WAY (1) output mode.

9. CH 1/2 LOW OUTPUT CONNECTOR:

Connect to the front midrange/tweeter satellite (1-WAY output mode), or the front midrange driver (2-WAY output mode) amplifier input terminals.

10. CH 1/2 HIGH OUTPUT CONNECTOR:

Connect to front tweeter (2-WAY output mode only) amplifier input terminals.

11. OUTPUT LEVEL CONTROLS:

Relative output levels of all the outputs of the 3672 can be adjusted independently using these controls. This facilitates changes to the actual output of each amplifier to compensate for different speaker efficiencies and amplifier sensitivities. It can also alter or improve the total system frequency response by raising or reducing the output of some drivers.

12. OUTPUT PHASE SWITCHES:

Sets the phase of the Subwoofer, CH 1/2 Low, CH 1/2 High, CH 3/4 Mid and CH 3/4 High outputs to 0° (in phase) or 180° (inverted) independently from the other outputs. This feature can be used to compensate for acoustical response irregularities or standing waves and to improve or correct imaging.

13. CH 1/2 LOW/HIGH CROSSOVER FREQUENCY ADJUSTMENT CONTROL:

This continuously variable control sets the crossover frequency between the Low and High bands of CH 1/2. It can be adjusted from 3k to 10 kHz and is only activated in the 2-WAY mode.

14. CH 1/2 OUTPUT MODE SELECTOR SWITCH:

Selects 2-WAY (separate midrange and tweeter) or 1-WAY (combined midrange/tweeter satellite) operation for CH 1/2.

15. CH 1/2 LOW OUTPUT LOWER CUTOFF FREQUENCY ADJUSTMENT CONTROL:

This continuously variable control adjusts the high-pass corner frequency of the CH 1/2 Low output. This control is completely independent from the Subwoofer and the CH 3/4 Low output. It can be adjusted from 50 to 800 Hz in both 2-WAY and 1-WAY output modes.

16. CH 3/4 MID/HIGH CROSSOVER FREQUENCY ADJUSTMENT CONTROL:

This continuously variable control adjusts the crossover frequency between the Mid and High outputs of CH 3/4. It is adjustable from 3k to 10 kHz. This control is used in 3-WAY and 2-WAY (2) output modes only.

17. CH 3/4 LOW/MID CROSSOVER FREQUENCY ADJUSTMENT CONTROL:

This continuously variable control is used for setting the crossover frequency between the Low and Mid outputs of CH 3/4. It is adjustable from 200 Hz to 2 kHz. This control is used in 3-WAY and 2-WAY (1) output modes only.

18. CH 3/4 OUTPUT MODE SELECTOR SWITCH:

Selects one of the 3 operation modes available for CH 3/4.

19. CH 3/4 LOW OUTPUT LOWER CUTOFF FREQUENCY ADJUSTMENT CONTROL:

This continuously variable control adjusts the high-pass corner frequency of the CH 3/4 Low output. This control is completely independent from the Subwoofer and the CH 1/2 Low output. It can be adjusted from 10 to 120 Hz. This control is used in all three output modes.

20. SUBWOOFER OUTPUT STEREO/MONO SWITCH:

Selects Stereo or Mono output for the sub-bass frequencies.

The Mono mode allows the use of one subwoofer along with a single channel amplifier. It must also be used when two or more subwoofers are mounted in a common enclosure or baffle board.

The Stereo mode can provide better separation when independent and isolated enclosure are used for each subwoofer.

21. REMOTE-ON INDICATOR:

An LED gives visual confirmation of whether or not the unit is in operation. Helps system troubleshooting.

22. SUBWOOFER OUTPUT UPPER CUTOFF FREQUENCY ADJUSTMENT CONTROL:

This continuously variable control adjusts the low-pass corner frequency of the subwoofer output independently from the CH 1/2 and CH 3/4 Low outputs. It is variable from 50 to 120 Hz.

23. SUBWOOFER MODE SWITCH:

Selects a Non-fading, Front-fading, or Rear-fading subwoofer output when using a head unit with two pre-outs and a built-in pre-amp fader.

In the Non-fading position (marked CH 1 — 4), the subwoofer output will be present regardless of the position of the head unit's fader control. Always use the CH 3/4 Non-Fading position when a single input is used and the 1-INPUT mode is selected.

24. 2/1 INPUT SELECTOR SWITCH:

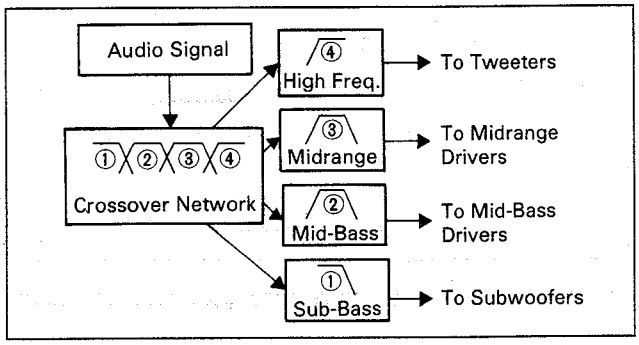
When the 2-input mode is selected, the CH 1/2 and CH 3/4 inputs are isolated from each other. This allows the use of a head unit with separate front and rear pre-outs while retaining its front to rear fading capability.

The 1-Input mode combines the front and rear inputs so that a head unit with a single pre-out can be used. Front-to-rear fading is not possible in this mode. In the 1-input mode, only CH 3/4 inputs can be used. CH 1/2 inputs will be disabled.

Theory of Operation

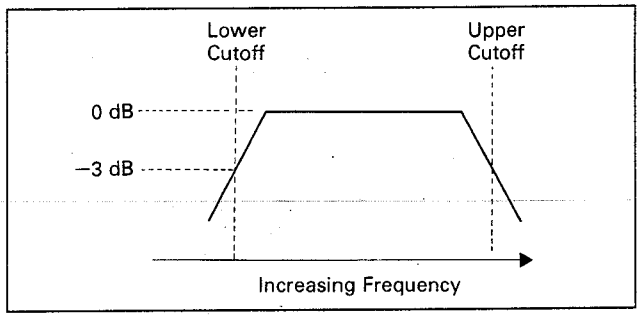
CROSSOVER NETWORKS:

A crossover network divides the audio spectrum into different segments. This segmentation is based on the frequency of the signal. The crossover network actually employs filters that pass a certain range of frequencies and block the rest. This way, the signal can be separated into a set of signals with different frequency response ranges.



The lowest frequency appreciably present with at least half the magnitude of the frequency with the highest output level (3 dB down) in that segment, is called the **Lower Cutoff** or the **High-Pass Crossover** point.

The highest frequency present in that segment which is also at most 3 dBs lower than the frequencies with the highest output in that region, is called the **Upper Cutoff** or the **Low-Pass Crossover** point of the network.

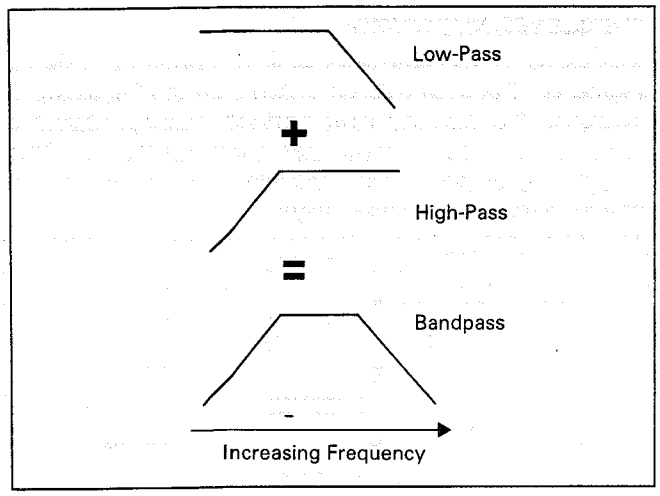


A crossover network section does not necessarily have both the lower and higher crossover frequencies:

1. LOW-PASS CROSSOVERS: Filters with only an upper cutoff frequency. Subwoofer outputs are generally low-pass.

2. HIGH-PASS CROSSOVERS: Have a lower cutoff frequency only. Tweeter (High) outputs are generally high-pass.

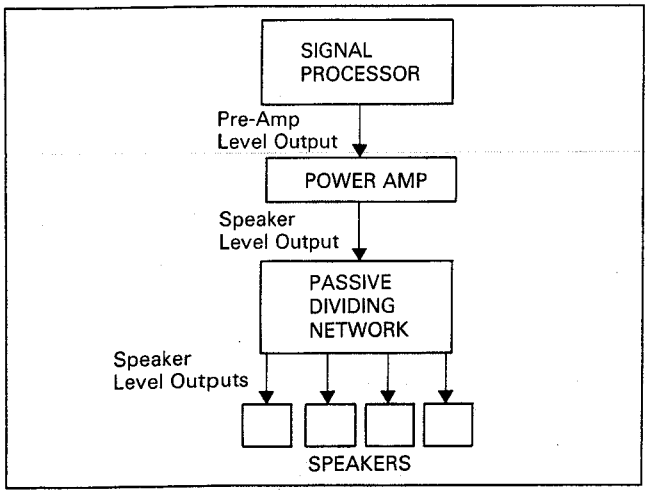
3. BANDPASS CROSSOVERS: Have both lower and upper crossover points. These filters are made by adding a Low-pass and a High-pass crossover together in series. Midrange crossovers are generally bandpass.



There are two methods of implementing a crossover network:

PASSIVE NETWORKS:

Consist of inductors, capacitors, resistors or a combination of these components. The term "passive" refers to the fact that there are no active components (such as transistors or op-amps) in these systems. Passive networks are inserted between the amplifier and the speakers. They act on the amplified speaker-level outputs of the amp. Passive networks are used in most automotive 2 or 3 way speakers and home speaker systems.



Passive networks are very cost-efficient to build. They also allow the use of one amplifier to drive all the components of the speaker system. However, they have many disadvantages:

a. Inefficiency: A considerable amount of power produced by the amplifier is dissipated (wasted) through the passive crossover network before reaching the speakers.

b. Phase shift: Inductive and capacitive characteristics of the passive networks introduced phase-shift and distortion into the signal driving the speakers.

c. Intermodulation Distortion: As all audio frequencies pass through the same amplifier, sub-bass can intermodulate mid-bass and midrange frequencies and "muddy" the sound. Also high frequency square-wave components that result from clipping low frequencies, can quickly and easily damage the tweeters.

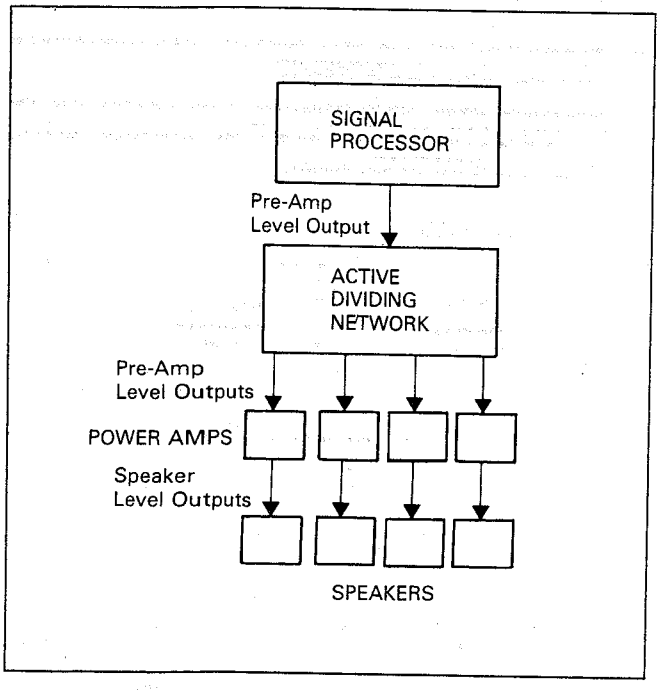
d. Unbalanced sound: Due to the fact that one amplifier is driving all the speaker components, the output level of each driver is related to its efficiency only. Low frequency drivers are generally less efficient than midranges or tweeters. This causes an imbalance in the output frequency response that can only be corrected by experimentation and the use of power-robbing multi-watt resistors.

e. Non-linear Response: Inductive and capacitive components react with the non-linear characteristics of a real-life speaker (which has its own inductance and capacitance). This results in unpredictable frequency response deviation in the total system response that can be very difficult to pin-point and correct.

ACTIVE DIVIDING NETWORKS:

Consist of active components such as op-amps and transistors. These components accomplish the filtering and signal division before amplification, while the signal is still at its pre-amp level. An active dividing network is inserted before the amplifier(s), after all the pre-amp level signal processing is done. This allows running separate amplifiers for each component driver. Therefore, passive filters between the amp and the speaker components are no longer necessary. By using separate amplifiers, the drivers are completely isolated from each other:

a. The inefficiency problem of the passive networks is eliminated because there are no longer any additional components (such as inductors, capacitors, or resistors) between the amplifier and the speaker. This ensures that all the output of the amplifier is delivered to the speaker.



b. No inductors and only a few small capacitors are used in active dividing networks. Therefore, large phase shifts and their associated problems are eliminated.

c. Different components of the speaker system are driven by separate amplifiers. These amplifiers act as isolators and prevent any interaction and intermodulation between the different drivers. Tweeters will be safe from high frequency by-products of a clipping subwoofer.

d. Level imbalances between different speakers are overcome very easily by adjusting the output level control of each band. Because only the pre-amp input level to amplifier is changed, there is no loss in efficiency.

e. The Butterworth filters used in all Alpine active dividing networks have extremely low ripple and excellent frequency response characteristics. Response non-linearities are virtually eliminated.

Wiring and Set-up

AUDIO CONNECTIONS and SET-UP:

To reduce chances of vehicle-induced noise generated by radiation from other electrical equipment entering your sound system, use audiophile quality RCA extension cables whenever possible. We recommend Alpine's gold plated, triple shielded wires and accessories for best results. These accessories feature a copper braid/aluminum foil shield which is completely isolated from the signal path. This independent shield will block any radiated noise from entering the audio signal.

A great deal of time and labor will be saved if you invest in high quality signal cables <u>before</u> the system is installed, rather than upgrading after a noise problem surfaces.

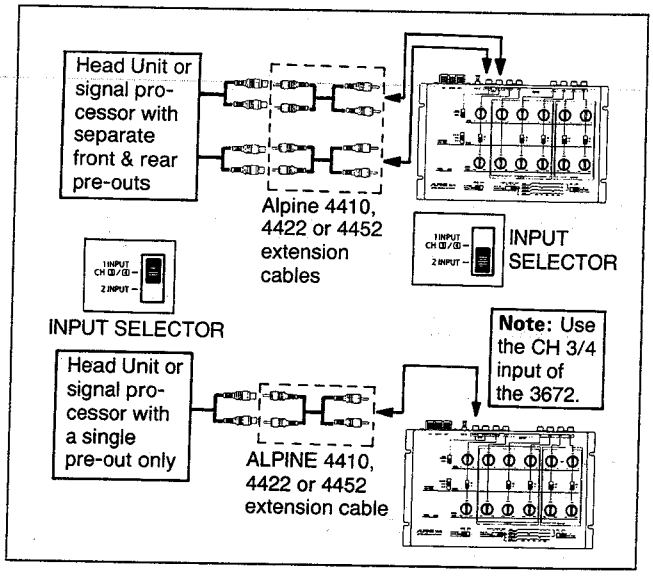
Route the sound system's audio cables and power cables separately, as far away from each other as possible, in order to minimize chances of interference from high current power wires (such as power amp battery leads) being picked up by the audio cables.

The Alpine's 3672 is a very versatile and flexible piece of equipment. To achieve this high degree of versatility, it was necessary to include many installer-adjustable controls that need be set for each different mode of operation.

After the 3672 is mounted properly, it should be set up as described below. We recommend using Alpine 4410, 4422 or 4452 extension cables for high quality, reliable and long-lasting connections.

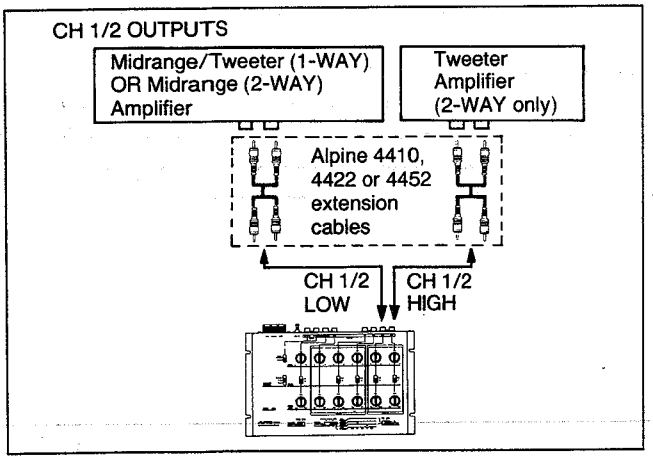
• **INPUTS:**

1. If the head unit has separate front and rear pre-amp outputs, connect each one using an extension cable to the front and rear inputs of the 3672. Set the Input Selector (page 7, item 24) to the 2-input mode.
2. If the head unit has a single pre-amp output, connect it to the CH 3/4 input of the 3672 using an extension cable. Set the Input Selector (page 7, item 24) to the 1-input mode.


Head Unit or signal processor with separate front & rear pre-outs
Alpine 4410, 4422 or 4452 extension cables
INPUT SELECTOR
INPUT SELECTOR
Note: Use the CH 3/4 input of the 3672.
Head Unit or signal processor with a single pre-out only
ALPINE 4410, 4422 or 4452 extension cable

CH 1/2 OUTPUTS:

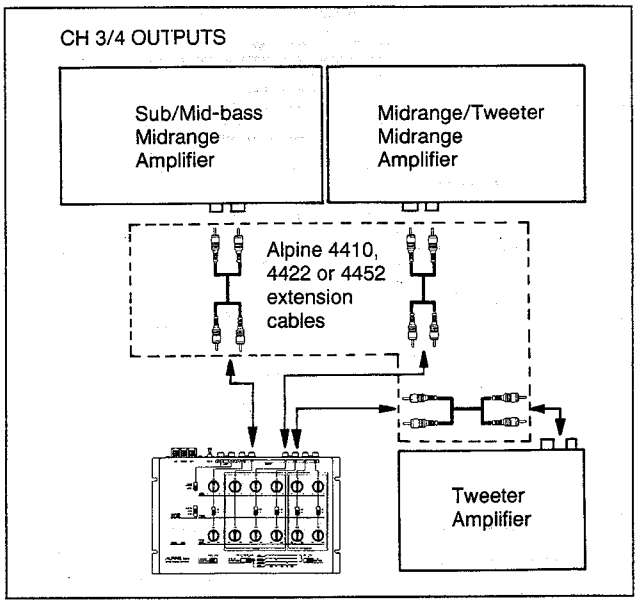
1. Select 1-way or 2-way operation for the Front satellites (tweeter/midranges) using the CH 1/2 Mode Selector Switch (page 6, item 14).
2. Connect the CH 1/2 Low output to the Front Midrange (2-way mode) or Front Midrange/Tweeter satellite (1-way mode) amplifier using an extension cable.
3. Connect the CH 1/2 High output to the Front Tweeter amplifier (2-way mode only) using an extension cable.
4. Set the CH 1/2 Low and High Phase Switches as necessary. See page 6, item 12.
5. Adjust the CH 1/2 Low (2-way and 2-way modes) and the High (2-way mode only) Output Level Controls as described in the ADJUSTMENTS section.
6. Adjust the Lower Cutoff Frequency of the CH 1/2 Low output (2-way or 1-way mode) as described in the ADJUSTMENT section.
7. Adjust the Low/High Crossover Frequency (2-way mode only) as described in the ADJUSTMENTS section.


CH 1/2 OUTPUTS
Midrange/Tweeter (1-WAY) OR Midrange (2-WAY) Amplifier
Tweeter Amplifier (2-WAY only)
Alpine 4410, 4422 or 4452 extension cables
CH 1/2 LOW
CH 1/2 HIGH

CH 3/4 OUTPUTS:

NOTE: A 3 position switch (page 6, item 18) determinates the operation mode for the CH 3/4 outputs of the 3672.

1. Select one of the 3 output modes as described above and on page 6 (item 18).
2. Connect the CH 3/4 Low output to the Rear Sub/Mid-bass (3-WAY and 2-WAY (1)) or Midrange (2-WAY (2)) amplifier using an extension cable.
3. Connect the CH 3/4 Mid output to the Rear Midrange/Tweeter (2WAY (1) or Midrange (3-WAY)) amplifier using an extension cable.
4. Connect the CH 3/4 High output to the Rear Tweeter (3-WAY and 2-WAY (2)) amplifier using an extension cable.
5. Set the CH 3/4 Mid and High Phase switches as necessary. See item 12 on page 6.
6. Adjust the CH 3/4 Low, Mid and High output level controls (as used). See ADJUSTMENTS.
7. Adjust the Lower Cutoff Frequency of the CH 3/4 Low, the Low/Mid and Mid/High Crossover Frequencies as outlined in the ADJUSTMENTS section.

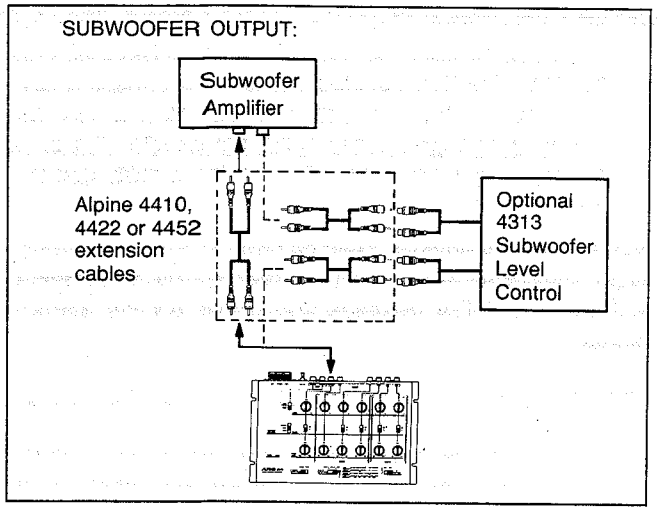


SUBWOOFER OUTPUT:

1. Connect the Subwoofer output of the 3672 to the subwoofer amplifier.

NOTE: THE OPTIONAL ALPINE 4313 REMOTE INDASH SUBWOOFER LEVEL CONTROL CAN BE USED WITH THE 3672, IN THAT CASE, CONNECT THE SUBWOOFER OUTPUT OF THE 3672 TO THE 4313'S INPUT USING AN EXTENSION CABLE. THEN CONNECT THE 4313'S OUTPUT TO THE SUBWOOFER AMPLIFIER USING ANOTHER EXTENSION CABLE.

2. Set the Subwoofer Mode switch (page 7, item 23) for Non-Fading (CH 1 — 4) (constant bass), Front-Fading (CH 1/2), or Rear-Fading (CH 3/4) subwoofer output. See item 23 on page 7 for details. **Always use CH 3/4 when the 1-INPUT mode is selected.**
3. Set the Subwoofer Phase and Stereo/Mono switches as desired. See items 12 and 20 on page 6.
4. Adjust the Subwoofer Output Level controls explained in the ADJUSTMENTS section.
5. Adjust the Subwoofer Upper Cutoff Frequency as outlined in the ADJUSTMENTS section.


SUBWOOFER OUTPUT:
Subwoofer Amplifier
Alpine 4410, 4422 or 4452 extension cables
Optional 4313 Subwoofer Level Control

POWER CONNECTIONS:

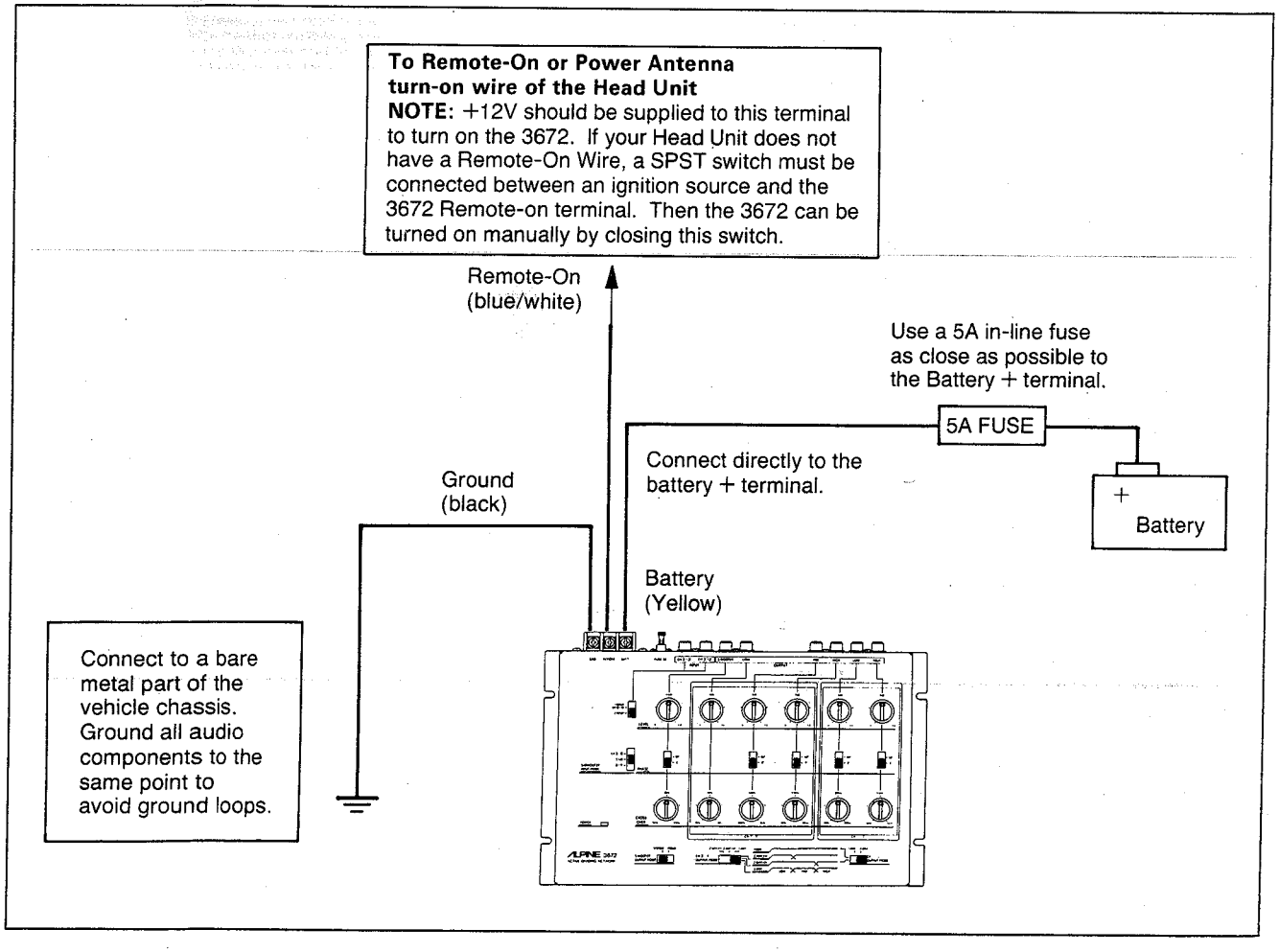
CAUTION: ALWAYS DISCONNECT THE VEHICLE BATTERY'S NEGATIVE (–) TERMINAL BEFORE STARTING ANY WIRING CONNECTIONS.

Use the diagram below.

To insure a low impedance path from the vehicle's battery to the 3672, 12-gauge or larger wire should be used to extend the battery (+) or ground wires.

A 5A inline fuse should be used as close as possible to the battery's (+) terminal to protect the vehicle and the system.

All audio components should be grounded to a common point on the chassis. This grounding point must be verified as a true ground point by checking its continuity with the battery's (–) terminal, using an ohmmeter. It should also be free of paint and contaminants.


To Remote-On or Power Antenna turn-on wire of the Head Unit
NOTE: +12V should be supplied to this terminal to turn on the 3672. If your Head Unit does not have a Remote-On Wire, a SPST switch must be connected between an ignition source and the 3672 Remote-on terminal. Then the 3672 can be turned on manually by closing this switch.
Remote-On (blue/white)
Use a 5A in-line fuse as close as possible to the Battery + terminal.
5A FUSE
Connect directly to the battery + terminal.
+ Battery
Ground (black)
Battery (Yellow)
Connect to a bare metal part of the vehicle chassis. Ground all audio components to the same point to avoid ground loops.

Adjustments

GENERAL REQUIREMENTS:

The Alpine 3672 is a very precise and versatile piece of equipment. It should be adjusted by an autosound specialist who possesses the knowledge and the tools to accomplish this task accurately. It would be helpful to use a Real Time Analyzer (such as Alpine 4780), but it is not absolutely necessary.

* It is imperative to have easy access to the 3672 while it is being adjusted. If it is to be mounted permanently in a location which will not allow easy access, it will be necessary to temporarily relocated the unit by using long audio and power extension wires.
* Before any adjustments can be made, all stereo system components (except for the 3672) must be permanently mounted in their locations, and the passenger compartment should be completely reassembled, as removed door panels or seats will affect the frequency response of the vehicle's interior.
* The vehicle's doors should be closed and windows rolled up. This may require temporary relocation of the 3672 outside the vehicle's passenger compartment (if it is to be permanently mounted there) using long extension wires.
* The trunk can be left open if the passenger compartment, including all the speakers and speaker enclosures, are sealed off from the trunk.
* Check the component speakers' specifications for their rated frequency response. The active crossover frequencies used for each speaker must fall within its frequency response. For example, a mid-bass woofer rated from 60Hz to 300Hz must not be driven with frequencies lower than 60Hz or higher than 300Hz. Otherwise, the sound quality will be severely degraded and speaker damage may also result. Therefore, tentatively adjust the 3672 crossover points not to exceed the frequency response of the drivers and remember to stay with in these boundaries during the adjustment procedure.

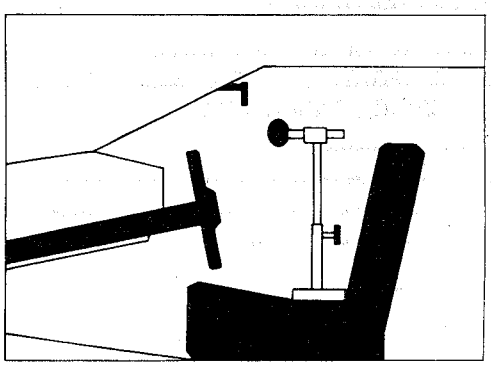
RTA REQUIREMENTS AND SET-UP

* It will be most convenient to have the 3672 as close as possible to the RTA during adjustments as it is easier to monitor the changes made by each control.
* This RTA should cover at least 20Hz to 20kHz in at least one-octave increments. It should also possess the ability to analyze and display frequency response at 100dB or more Sound Pressure Level (SPL).
* As there are many different makes and models of Real Time Analyzers, it would be impractical to define set-up procedures for a specific unit. Therefore, you will need to familiarize yourself with the particular model of RTA you will be using to adjust the 3672. The RTA's owner's manual can provide all the necessary information. Alpine's 4780 Third Octave Analyzer can provide excellent accuracy, versatility and ease of operation.
* A high quality, calibrated microphone should be used with the RTA. The RTA manufacturer can recommend a suitable model. This microphone should have a very flat response throughout the audio bandwidth (20Hz to 20kHz). The Alpine 4780 RTA includes a calibrated microphone.

NOTE: RTA adjustments must be done in quiet surroundings. Noise from wind, traffic, or other car stereo systems will affect the RTA readings and throw off the adjustments.

After all the general requirements are met, proceed as follows:

1. Position the microphone on a microphone stand placed on the driver's seat, in the same position and height as the right ear of the driver.



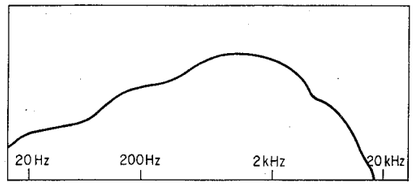
2. Connect the microphone to the RTA. Set the controls for non-weighing and greater than 100dB range.

ADJUSTMENT USING AN RTA:

1. Turn the sound system on, verify that all components are functional, and place all controls such as Bass, Treble, Fader, Balance, in-dash equalizer controls (if any) and 4313 Remote Subwoofer Level Control (if used) are in the center detente (neutral) position. Also verify that the Input Mode Switch, Subwoofer Fading Mode Switch, Subwoofer Stereo/Mono Switch, and Front and Rear Crossover Mode Switches are set as needed.
2. Using a test CD or tape such as the Alpine Official Reference Software, select the "Pink Noise" track and set the volume control of the system for a nominal 100dB average sound pressure level.

Perform the following steps with all doors closed, windows rolled up, and the vehicle interior completely intact:

3. This sound level will give you a display on the RTA screen. This display is the frequency response of the total system (the sound system and the vehicle's interior together). It may look somewhat similar to the one shown below:



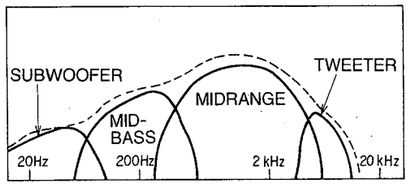
This display shows how many decibels of sound pressure exist at each frequency. A pleasant sounding system should have a smooth frequency response transition. Also, the relative balance between the different drivers' output levels must be correct.

Due to different component speaker efficiencies, power amplifier sensitivity, vehicle interior resonances, speaker and speaker enclosure non-linearities or interior audio section frequency response, an unadjusted system may have many peaks and dips in its frequency response.

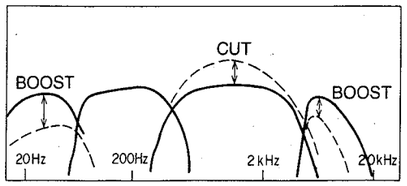
The 3672 can be adjusted to balance the acoustical response and reduce other non-linearities.

Certain frequency regions can also be boosted or cut to overcome road noise or to accommodate listener preferences.

4. If you are using a head unit with separate front and rear pre-outs, verify that the 2-input mode is selected, and fade to the front. Make sure that the rear drivers are defeated. Remember to keep the vehicle doors and windows closed during adjustments.
5. Analyze the spectrum display on the RTA to detect any imbalances between the output levels of each component driver. For example, in the display shown, the Subwoofer's response is lower than the mid-bass driver and the mid-bass driver's response is lower than the midrange speaker.



6. Find out which speaker's output is about average when compared to the other bands. Try to keep that region's output level control at 0dB as much as possible. **It is important to keep as many outputs as possible around the 0dB mark.** This is to avoid clipping or poor signal-to-noise ratio problems common with excessive boost or cut values. In the example shown above, the mid-bass level is about average. Therefore the Subwoofers and High outputs must be boosted and the midrange output should be reduced.
7. While observing the RTA screen, adjust the output level control to proper shape and smooth out the level differences.



8. Adjust and fine-tune the crossover points for each region to further smooth out the acoustical response.
9. Adjust the Phase Switches for CH 1/2 Low and High or CH 3/4 Mid and High (as applicable) to create the desired imaging characteristics.
10. Adjust the Subwoofer Output Phase switch for the best low frequency response.
11. If your head unit has a single pre-amp output only, skip to item 14.
12. Fade to the rear, check for defeated front speakers, close all vehicle doors and windows, and repeat steps 5 through 10.
13. Re-center the fader control, verify that all speakers are functional, close all the vehicle doors and windows, and repeat steps 5 through 10.
14. The Subwoofer output, CH 1/2 High or CH 3/4 High output (or any other output) level can now be increased or decreased for customer preferences such as more low bass or more emphasized highs.
15. Using a high quality music source, carefully evaluate the sound and perform any additional adjustments as necessary.

NOTE: It is almost always necessary to dial-in additional sub-bass boost in order to overcome road noise which increases with the vehicle's speed. If using the Alpine 4313 remote Subwoofer Level Control, adjustment in a stationary car is sufficient. The bass output can be increased or reduced by the user. Furthermore, the original setting can also be restored by returning the control to its center detente.

16. If the 4313 Remote Subwoofer Level Control was not installed, it will be necessary to test-drive the car, listen, and set the 3672's Subwoofer level control to a compromised value between the optimum setting for stationary and freeway speed conditions.

ADJUSTMENT WITHOUT AN RTA:

1. The unit should be temporarily moved to the driver's seat vicinity using long extension cables, and the adjustment should be done with the installer in the driver's seat.
2. A high quality source material (music) with excellent sound quality and frequency response must be used.
3. Turn the sound system on, verify that all components are functional, and place all controls such as Bass, Treble, Fader, Balance, in-dash equalizer controls (if any) and the 4313 Remote Subwoofer Level Control (if used) are in the center detente (neutral) position. Also verify that the Input Mode Switch, Subwoofer Fading Mode Switch, Subwoofer Stereo/Mono Switch, and CH 1/2 and CH 3/4 Crossover Mode Switches are set as needed.

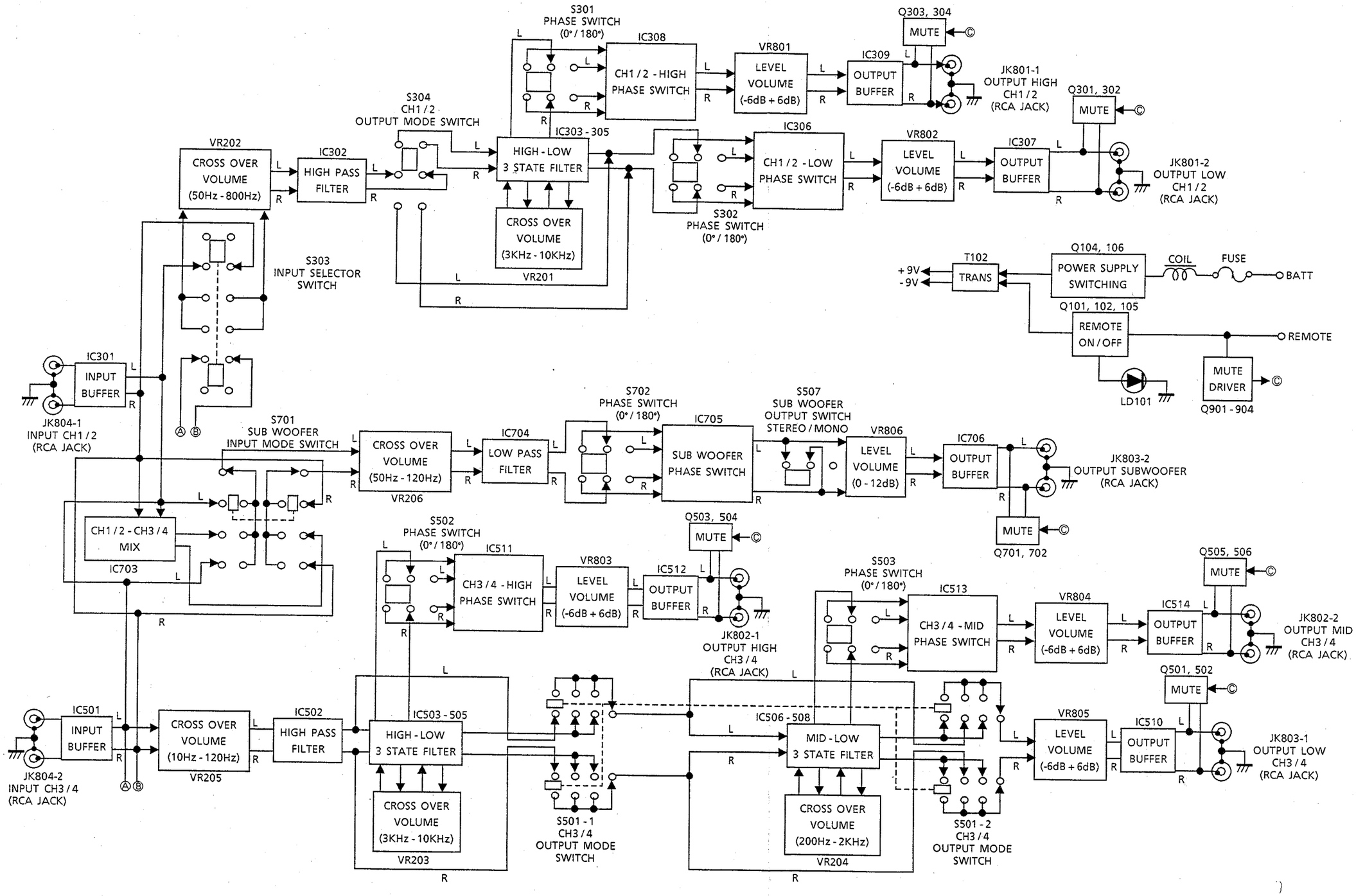
Perform the following steps while seated in the driver's seat, with all doors, windows and trunk closed, and the vehicle interior completely intact.

4. If you are using a head unit with separate front and rear pre-outs, verify that the 2-Input mode is selected, and fade to the front. Make sure that the rear drivers are defeated.
5. Listen carefully and try to find output level imbalance between the different component speakers.
6. If such an imbalance exists, determine which output level is average (higher than some and lower than some other ones).
7. Try to keep the output level for that band (or bands) at 0dB if possible.
8. Boost or cut the other bands as necessary to balance the sound.
9. Adjust and fine-tune the crossover points for each region for the most smooth and pleasant sound.
10. Adjust the Phase Switches for the CH 1/2 Low and High or CH 3/4 Mid and High outputs to create the desired imaging characteristics.
11. Adjust the Subwoofer Output Phase Switch for the best low frequency response.
12. If your head unit has a single pre-amp output only, skip to item 15.
13. Fade to the rear, check for defeated front speakers, close all vehicle doors and windows, and repeat steps 5 through 11.
14. Re-center the fader control, verify that all speakers are functional, close all the vehicle doors and windows, and repeat steps 5 through 11.
15. The Subwoofer output, CH 1/2 High or CH 3/4 High output (or any other output) level can now be increased or decreased for listener preferences such as more low bass or more emphasized highs.
16. Using a high quality music source, carefully evaluate the sound and perform any additional adjustments as necessary.

NOTE: It is almost always necessary to dial-in additional sub-bass boost in order to overcome road noise which increases with the vehicle's speed. If using the Alpine 4313 Remote Subwoofer Level Control, adjustment in a stationary car is sufficient. The bass output can be increased or reduced by the user. Furthermore, the original setting can also be restored by returning the control to its center detente.

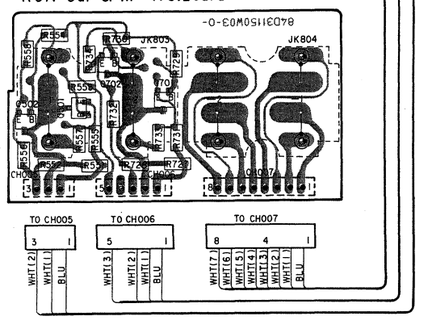
17. If the 4313 remote Subwoofer Level Control was not installed, it will be necessary to test-drive the car, listen, and set the 3672's Subwoofer level control to a compromised value between the optimum setting for stationary and freeway speed conditions.

Block Diagram

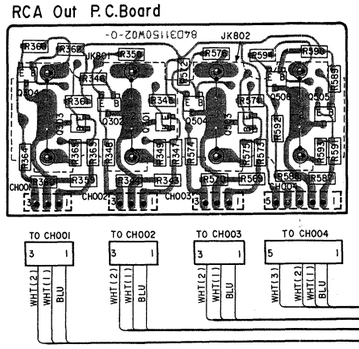


Parts Layout on P.C.Boards and Wiring Diagram

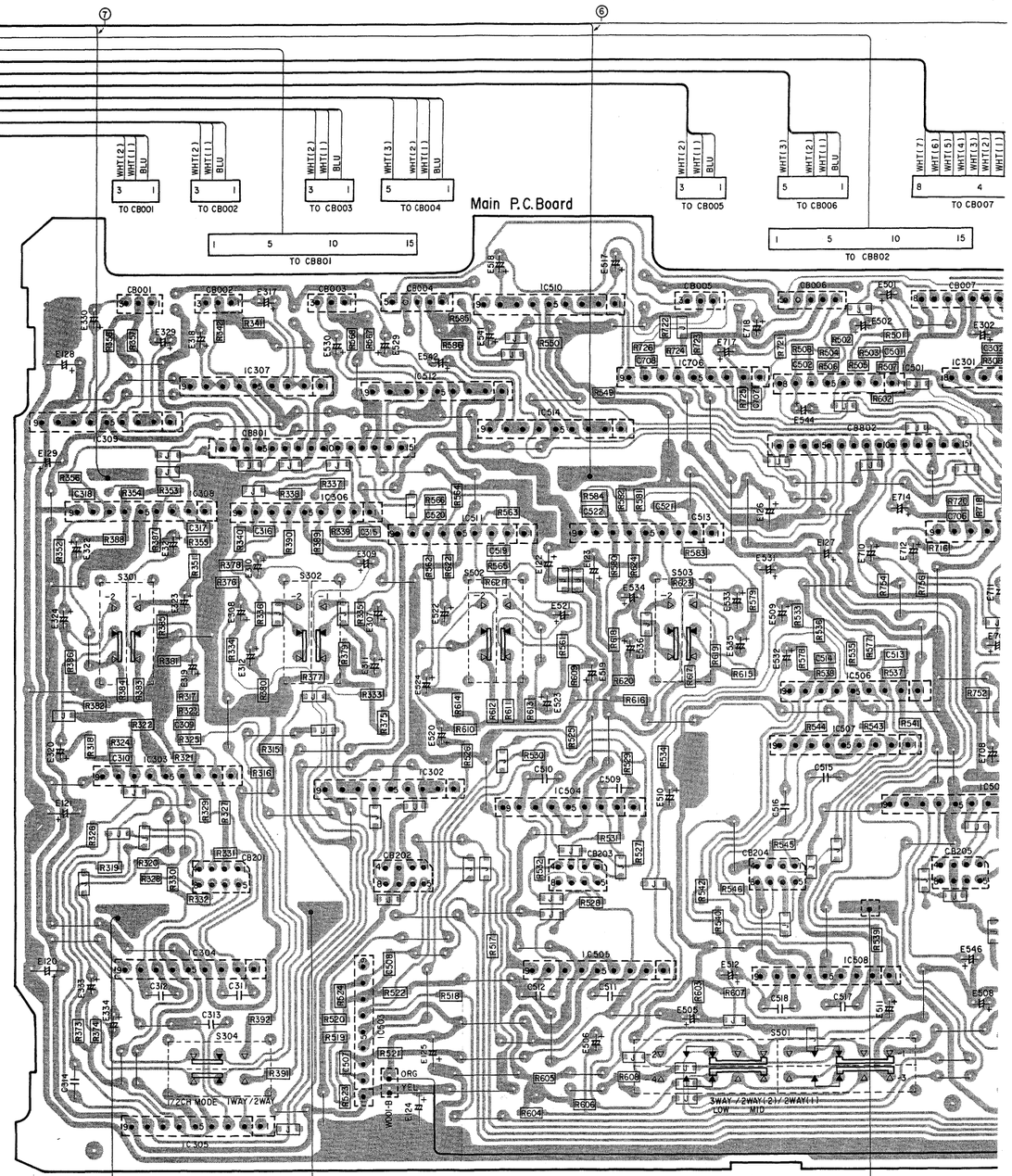
RCA Out & In P.C.Board



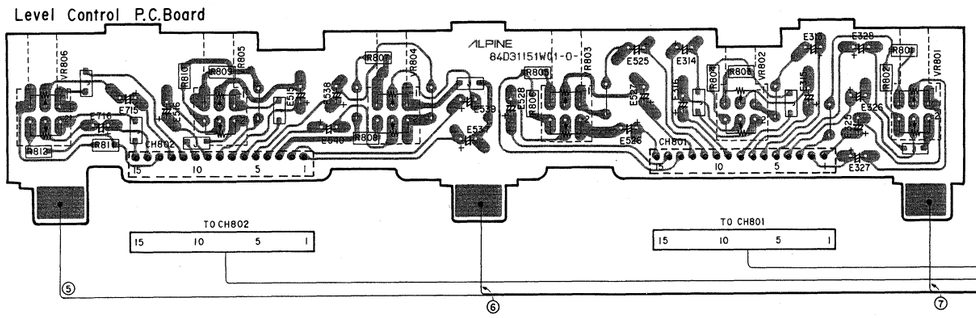
RCA Out P.C.Board



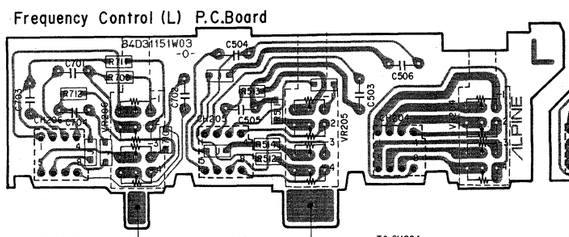
Main P.C.Board



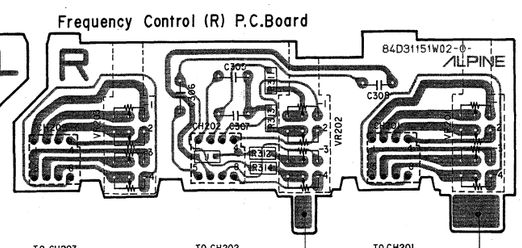
Level Control P.C.Board

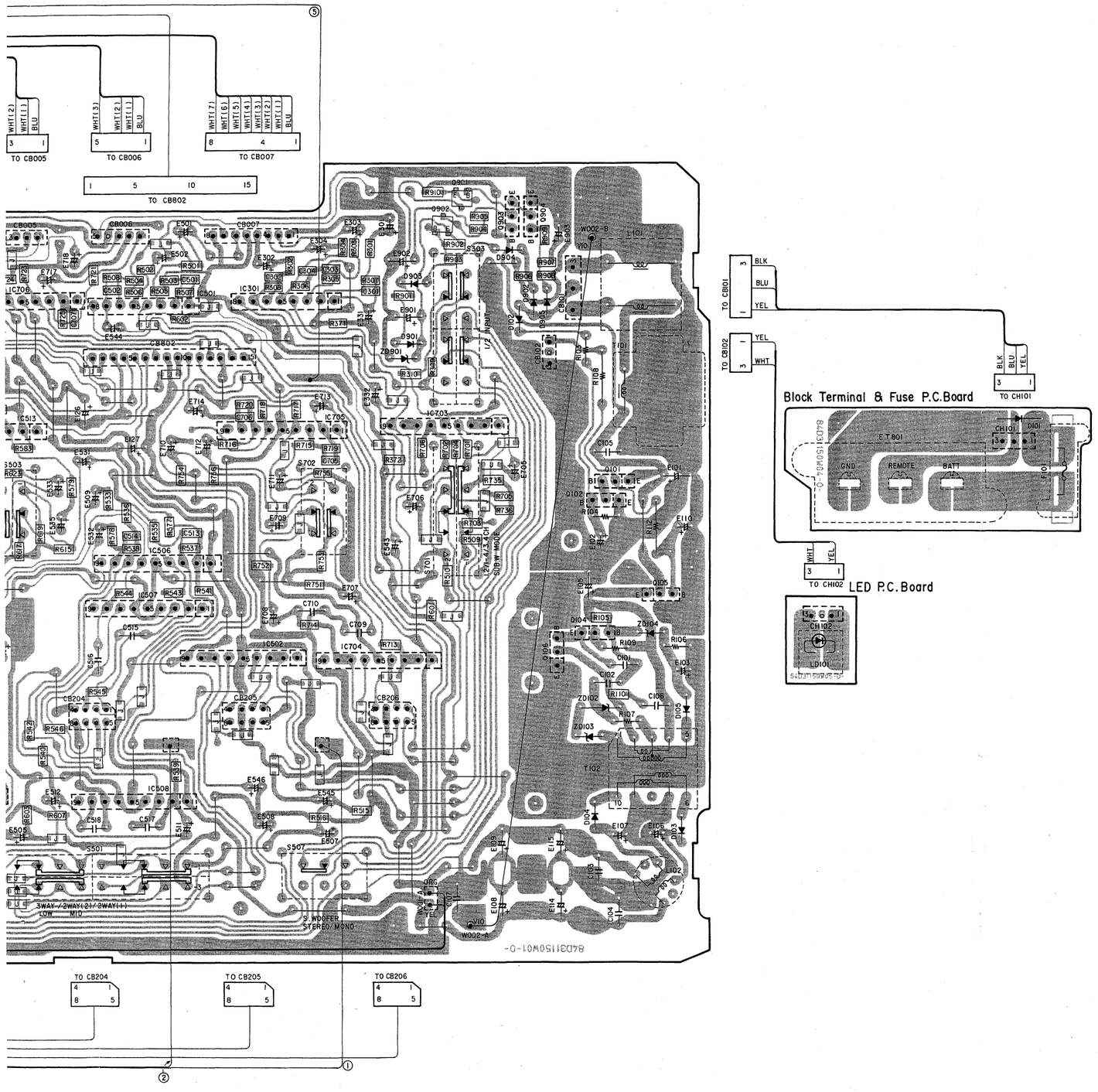


Frequency Control (L) P.C.Board



Frequency Control (R) P.C.Board




TO CB005
TO CB006
TO CB007
TO CB802
TO CB204
TO CB205
TO CB206
TO CB101
TO CB102
TO CH101
Block Terminal & Fuse P.C.Board
TO CH102
LED P.C.Board
CB102
LD101
3WAY (2WAY+2) / 2WAY (-)
LOW MID
S.WOOFER
STEREO/MONO
2ch-4/3.4ch
SUB WOOFER
8403115W04-0-

Schematic Diagram (Refer to page 25 for IC's and transistors voltage values.)

IC	IC301 IC501	IC302 IC502	IC503	IC304	IC504	IC305	IC505	IC303	IC506	IC308	IC507	IC309	IC508
Transistor (Q)													

RCA Out & In P.C.Board (1/2)

Main P.C.Board

Frequency Control (R) P.C.Board (1/10)

Frequency Control (R) P.C.Board (2/10)

Frequency Control (R) P.C.Board (3/10)

Level Control P.C.Board (1/6)

IC301 M5238L
INPUT BUFFER

IC302
μPC4570HA
HIGH PASS FILTER

IC303~305 μPC4570HA
HIGH/LOW 3 STATE FILTER

IC309
μPC4570HA
OUTPUT BUFFER

IC308
μPC4570HA
FRONT HIGH PHASE SWITCH

Frequency Control (R) P.C.Board (4/10)

Frequency Control (R) P.C.Board (5/10)

Frequency Control (R) P.C.Board (6/10)

Frequency Control (L) P.C.Board (1/8)

Frequency Control (R) P.C.Board (7/10)

Frequency Control (R) P.C.Board (8/10)

IC503~505 μPC4570HA
HIGH/LOW 3 STATE FILTER

IC506~508 μPC4570HA
MID LOW 3 STATE FILTER

Frequency Control (L) P.C.Board (2/8)

Frequency Control (L) P.C.Board (3/8)

Frequency Control (L) P.C.Board (5/8)

IC501 M5238L
INPUT BUFFER

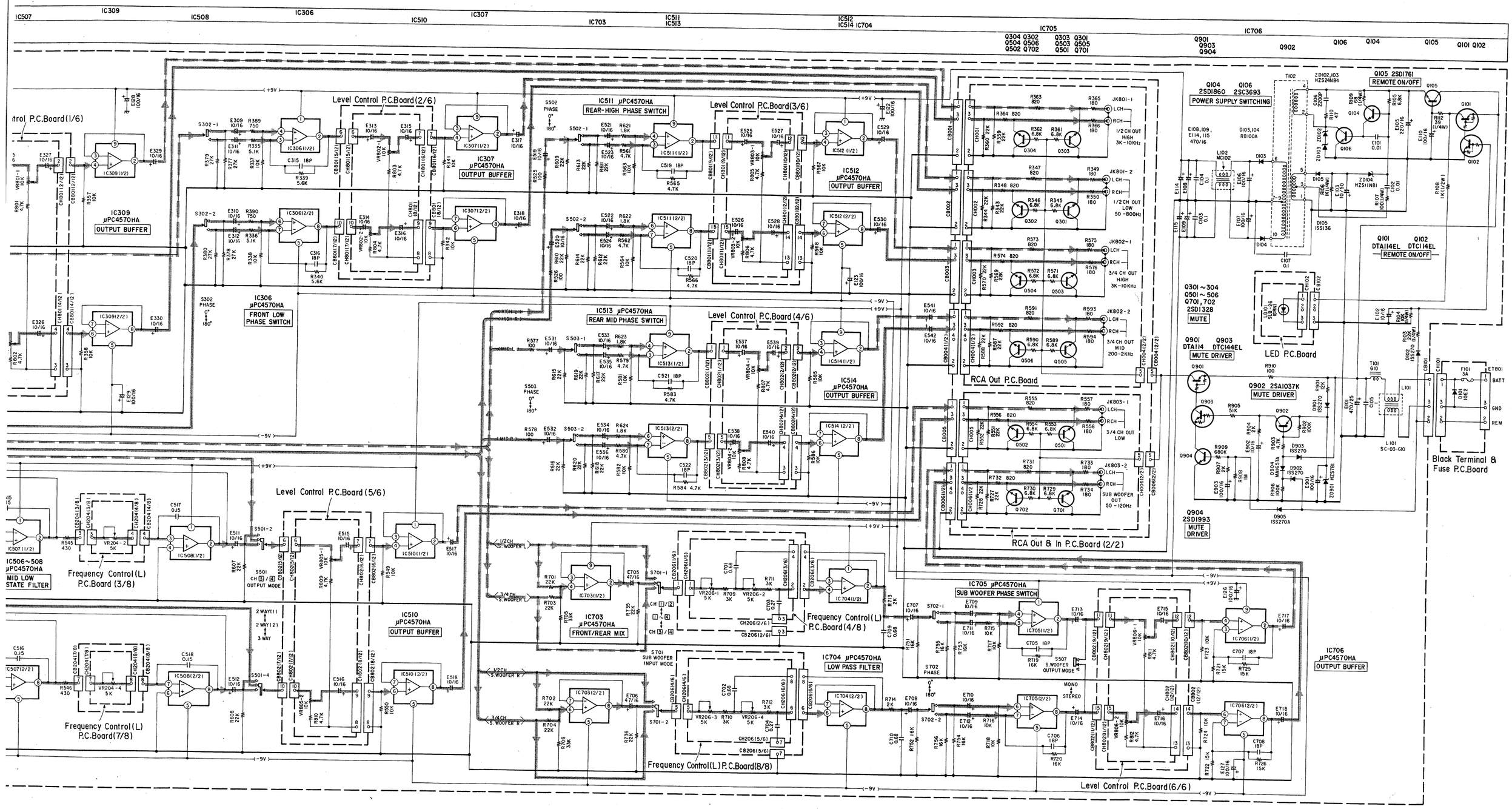
Frequency Control (R) P.C.Board (9/10)

Frequency Control (R) P.C Board (10/10)

Frequency Control (L) P.C.Board (6/8)

Frequency Control (L) P.C.Board (7/8)

NOTE:
1. All resistance values are in ohms. K= 1,000 M= 1,000,000
2. All capacitance values are in microfarads. P= 1/1,000,000



IC's and Transistors Voltage Values

Ref. No. / Pin Name	Q101	Q102	Q104	Q105	Q106	Q901	Q902	Q903	Q904
B	14.4V (0.04V)	0V (2.87V)	0.87V (0.81V)	1.29V (13.5V)	0.43V (–0.81V)	0.1V (14.3V)	6.42V (6.96V)	3.63V (20mV)	0.61V (0.63V)
C	1.45V (14.3V)	14.4V (0.04V)	0.92V (12.7V)	14.5V (14.3V)	0.92V (12.8V)	12.2V (–0.38V)	6.99V (0.02V)	0.1V (14.3V)	70mV (20mV)
E	14.4V (14.3V)	0V (0.01V)	0.43V (–0.81V)	0.81V (12.8V)	0V (0.01V)	12.32V (14.3V)	7.01V (7.02V)	80mV (20mV)	0V (0.01V)

Ref. No. / Pin Name	Q301	Q302	Q303	Q304	Q501	Q502	Q503	Q504	Q505	Q506	Q701	Q702
B	0.7V (–0.25V)	0.7V (–0.25V)	0.7V (–0.25V)	0.7V (–0.25V)	0.7V (–0.25V)	0.7V (–0.25V)	0.7V (–0.25V)	0.7V (–0.25V)	0.7V (–0.25V)	0.7V (–0.25V)	0.7V (–0.25V)	0.7V (–0.25V)
C	0V (0V)	0V (0V)	0V (0V)	0V (0V)	0V (0V)	0V (0V)	0V (0V)	0V (0V)	0V (0V)	0V (0V)	0V (0V)	0V (0V)
E	0V (0V)	0V (0V)	0V (0V)	0V (0V)	0V (0V)	0V (0V)	0V (0V)	0V (0V)	0V (0V)	0V (0V)	0V (0V)	0V (0V)

Ref. No. / Pin No.	IC301	IC302	IC303	IC304	IC305	IC306	IC307	IC308	IC309	IC501	IC502	IC503	IC504
1	0V					9.75V				0V		9.75V	
2	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V
3	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V
4	–9.8V	0V	0V	0V	0V	0V	0V	0V	0V	–9.8V	0V	0V	0V
5	0V	–9.8V	–9.8V	–9.8V	–9.8V	–9.8V	–9.8V	–9.8V	–9.8V	0V	–9.8V	–9.8V	–9.8V
6	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V
7	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V
8	9.75V	0V	0V	0V	0V	0V	0V	0V	0V	9.75V	9.75V	9.75V	9.75V
9		9.75V	9.75V	9.75V	9.75V		9.75V	9.75V	9.75V		9.75V		9.75V

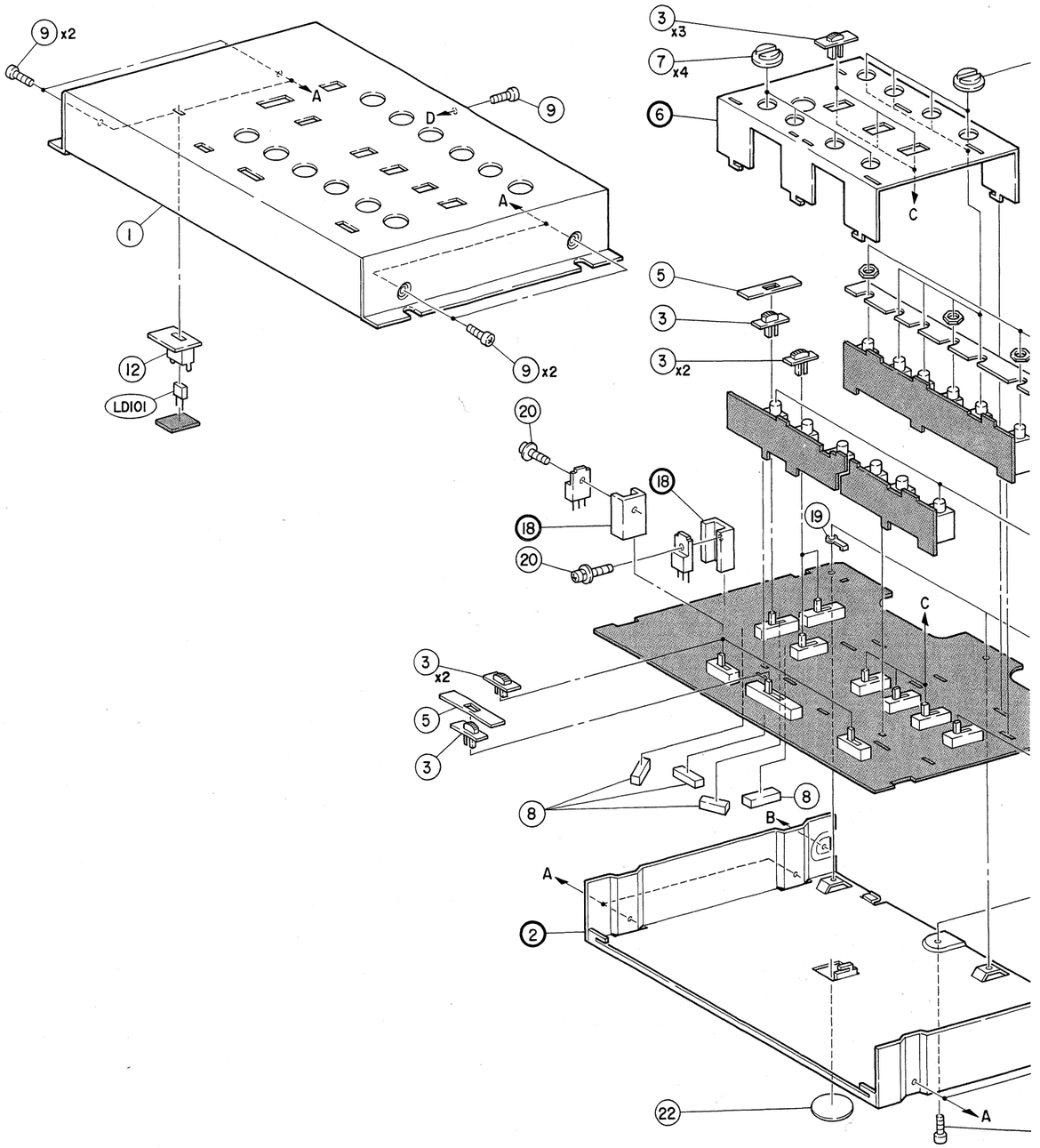
Ref. No. / Pin No.	IC505	IC506	IC507	IC508	IC510	IC511	IC512	IC513	IC514	IC703	IC704	IC705	IC706
1		9.75V	9.75V	9.75V	9.75V		9.75V				9.75V	9.75V	
2	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V
3	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V
4	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V
5	–9.8V	–9.8V	–9.8V	–9.8V	–9.8V	–9.8V	–9.8V	–9.8V	–9.8V	–9.8V	–9.8V	–9.8V	–9.8V
6	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V
7	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V
8	9.75V	9.75V	9.75V	9.75V	9.75V	9.75V	0V	0V	0V	0V	0V	0V	0V
9	9.75V					9.75V		9.75V	9.75V	9.75V			9.75V

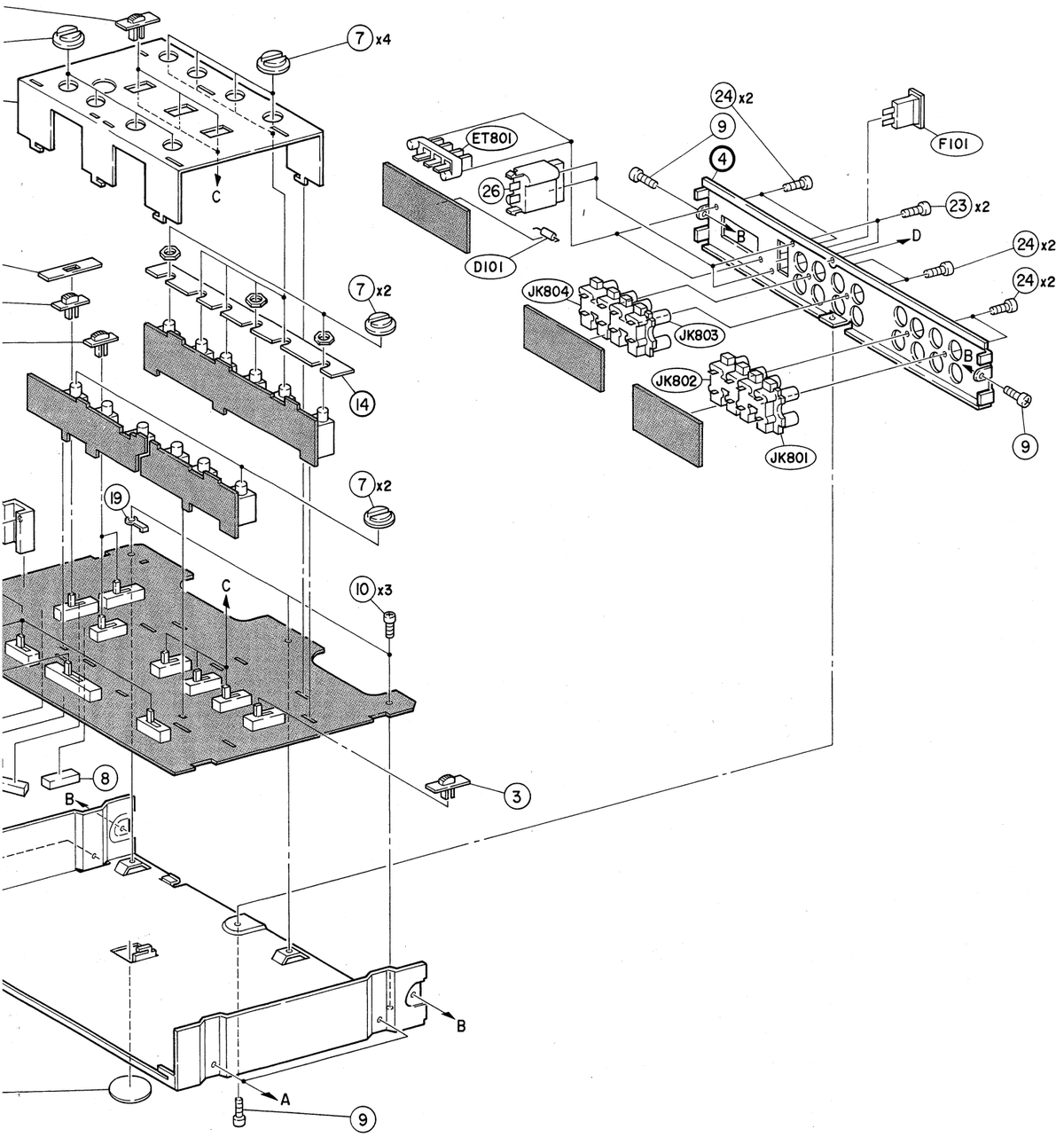
● Measuring Conditions

1. Power Supply Voltage : DC14.4V
2. Measuring Equipment : Digital Multi Meter
3. Measuring Point Reference : Between GND
4. Measuring Condition : No Signal Input

No mark : Remote OFF mode
( ) : Remote ON mode

Exploded View (Cabinet)





Cabinet Assembly Parts List

Note : The parts without parts list are not supplied.

Symbol No.	Index	Part No.	Description
1	2-A	15D73357F04	Cover, Top
3		36B73360F01	Knob, Slide
5		64A96064F01	Plate, Switch
7		36A31191W01	Knob, Rotary
8	4-C	75S72374F53	Cushion, Rubber
9		03S44205G34	Screw, Pan (M2.6×5)
10	3-E	03S44205G62	Screw, Bind (M2.6×5)
12	2-B	15A31196W01	Cover, LED
19	3-D	29A737272	Lug, Wrap Around
20		03D40121T05	Screw, W/Double Washer (M3×8)
22	5-C	54S60912F11	Label, Round STD
23	2-G	03S68555F02	Screw, Pan (M2×5.5)
24		03S40012G41	Screw, Tapping (M3×8)
26	2-E	09T70751F01	Holder, Auto Fuse

Symbol No.	Index	Part No.	Description

Electrical Parts List

Resistor : Carbon resistors under 1/4 watts are not mentioned in the parts list, please confirm them by schematic diagram.

Capacitor : μF = microfarads, pF = picofarads

Abbreviations

RES. =	Resistor	CAP. =	Capacitor
C.F. =	Carbon Film	ELY. =	Electrolytic
M.F. =	Metal Film	CER. =	Ceramic
M.O. =	Metal Oxide Film	MYL. =	Mylar
M.P. =	Metal Plate	TAN. =	Tantalum
TR. =	Transistor	POLY. =	Polystyrol
TRANS. =	Transformer	PP. =	Polypropylene
CP. =	Chip	PLT. =	Polyethylene
		PF. =	Polyester Film

Main P. C. Board

Symbol No.	Part No.	Description
IC's		
IC301	51T80136F02	M5238L
IC302	51T83403F03	μPC4570HA
IC303	51T83403F03	μPC4570HA
IC304	51T83403F03	μPC4570HA
IC305	51T83403F03	μPC4570HA
IC306	51T83403F03	μPC4570HA
IC307	51T83403F03	μPC4570HA
IC308	51T83403F03	μPC4570HA
IC309	51T83403F03	μPC4570HA
IC501	51T80136F02	M5238L
IC502	51T83403F03	μPC4570HA
IC503	51T83403F03	μPC4570HA
IC504	51T83403F03	μPC4570HA
IC505	51T83403F03	μPC4570HA
IC506	51T83403F03	μPC4570HA
IC507	51T83403F03	μPC4570HA
IC508	51T83403F03	μPC4570HA
IC510	51T83403F03	μPC4570HA
IC511	51T83403F03	μPC4570HA
IC512	51T83403F03	μPC4570HA
IC513	51T83403F03	μPC4570HA
IC514	51T83403F03	μPC4570HA
IC703	51T83403F03	μPC4570HA
IC704	51T83403F03	μPC4570HA
IC705	51T83403F03	μPC4570HA
IC706	51T83403F03	μPC4570HA
Transistors		
Q101	48T82762F02	DTA114EL
Q102	48T82763F02	DTC114EL
Q104	48T83414F04	2SD1860
Q105	48T82308F01	2SD1761
Q106	48T35056W01	2SC3693
Q901	48T62966F02	CP., DTA114
Q902	48T63420F01	CP., 2SA1037K
Q903	48T82763F04	DTC144EL
Q904	48T90181F05	2SD1993
Diodes		
D102	48T84758F01	1SS270
D103	48T25664W01	RB100A
D104	48T25664W01	RB100A
D105	48T70933F01	1SS136
D901	48T84758F01	1SS270
D902	48T84758F01	1SS270
D903	48T84758F01	1SS270
D904	48T44813F01	MA165TA
D905	48T84758F01	1SS270
ZD102	48T90517F75	Zener, HZS24NB4
ZD103	48T90517F75	Zener, HZS24NB4
ZD104	48T90517F47	Zener, HZS11NB1
ZD901	48T83128F13	Zener, HZS7B1
Filter / Transformer		
T101	25C40894G10	Filter, Choke
T102	25T35256W01	D/D Conv.
Switches		
S301	40T69085F03	Slide, SSSB22 (PHASE SWITCH)
S302	40T69085F03	Slide, SSSB22 (PHASE SWITCH)
S303	40T94428F01	Slide, SSSB-42 (INPUT SELECTOR)
S304	40T69085F03	Slide, SSSB22 (1WAY / 2WAY)
S501	40T94429F01	Slide, SSSB-43 (2WAY (1) / 2WAY (2) / 3WAY)
S502	40T69085F03	Slide, SSSB22 (PHASE SWITCH)
S503	40T69085F03	Slide, SSSB22 (PHASE SWITCH)
S507	40T69085F03	Slide, SSSB22 (STEREO / MONO)
S701	40T69085F05	Slide, SSSB023 (SUB WOOFER INPUT MODE)
S702	40T69085F03	Slide, SSSB22 (PHASE SWITCH)

Symbol No.	Part No.	Description
Coils		
L101	25T35596W01	Choke, SC-03-10G
L102	24T60742F01	MC102
Capacitors		
C101	08T90316F17	TF, 0.01μF
E101	23T83923F61	ELY., 470μF/25V
C102	08T90316F17	TF, 0.01μF
E102	23S61524F13	ELY., 10μF/16V
C103	08T90316F29	TF, 0.1μF
E103	23T00181L44	ELY., 10μF/50V
C104	08T90316F29	TF, 0.1μF
C105	08T35122W25	POLY., 1μF
E105	23T35150W05	ELY., 220μF/16V
C106	08T90316F09	TF, 2200pF
E106	23T35149W03	ELY., 100μF/16V
C107	08T90316F29	TF, 0.1μF
E107	23T35149W03	ELY., 100μF/16V
E108	23T00149L28	ELY., 470μF/16V
E109	23T00149L28	ELY., 470μF/16V
E110	23S82482F02	ELY., 100μF/16V
E114	23T00149L28	ELY., 470μF/16V
E115	23T00149L28	ELY., 470μF/16V
E120	23T00149L25	ELY., 100μF/16V
E121	23T00149L25	ELY., 100μF/16V
E122	23T00149L25	ELY., 100μF/16V
E123	23T00149L25	ELY., 100μF/16V
E124	23T00149L25	ELY., 100μF/16V
E125	23T00149L25	ELY., 100μF/16V
E126	23T00149L25	ELY., 100μF/16V
E127	23T00149L25	ELY., 100μF/16V
E128	23T00149L25	ELY., 100μF/16V
E129	23T00149L25	ELY., 100μF/16V
C301	08S65128F29	CP., 56pF
E301	23T25149W09	ELY., 10μF/16V
C302	08S65128F29	CP., 56pF
E302	23T25149W09	ELY., 10μF/16V
C303	08S65128F29	CP., 56pF
E303	23T25149W09	ELY., 10μF/16V
C304	08S65128F29	CP., 56pF
E304	23T25149W09	ELY., 10μF/16V
E307	23T25149W09	ELY., 10μF/16V
E308	23T25149W09	ELY., 10μF/16V
C309	08S65128F17	CP., 18pF
E309	23T25149W09	ELY., 10μF/16V
C310	08S53332F14	CP., 18pF
E310	23T25149W09	ELY., 10μF/16V

Symbol No.	Part No.	Description
C311	08T90316F16	TF, 8200pF
E311	23T25149W09	ELY., 10μF/16V
C312	08T90316F16	TF, 8200pF
E312	23T25149W09	ELY., 10μF/16V
C313	08T90316F16	TF, 8200pF
C314	08T90316F16	TF, 8200pF
C315	08S65128F17	CP., 18pF
C316	08S53332F14	CP., 18pF
C317	08S53332F14	CP., 18pF
E317	23T25149W09	ELY., 10μF/16V
C318	08S53332F14	CP., 18pF
E318	23T25149W09	ELY., 10μF/16V
E319	23T25149W09	ELY., 10μF/16V
E320	23T25149W09	ELY., 10μF/16V
E321	23T25149W09	ELY., 10μF/16V
E322	23T25149W09	ELY., 10μF/16V
E323	23T25149W09	ELY., 10μF/16V
E324	23T25149W09	ELY., 10μF/16V
E329	23T25149W09	ELY., 10μF/16V
E330	23T25149W09	ELY., 10μF/16V
E331	23T25149W12	ELY., 47μF/16V
E332	23T25149W12	ELY., 47μF/16V
E333	23T25149W09	ELY., 10μF/16V
E334	23T25149W09	ELY., 10μF/16V
C501	08S65128F29	CP., 56pF
E501	23T25149W09	ELY., 10μF/16V
C502	08S65128F29	CP., 56pF
E502	23T25149W09	ELY., 10μF/16V
E505	23T25149W09	ELY., 10μF/16V
E506	23T25149W09	ELY., 10μF/16V
C507	08S53332F14	CP., 18pF
E507	23T25149W09	ELY., 10μF/16V
C508	08S53332F14	CP., 18pF
E508	23T25149W09	ELY., 10μF/16V
C509	08T90316F16	TF, 8200pF
E509	23T25149W09	ELY., 10μF/16V
C510	08T90316F16	TF, 8200pF
E510	23T25149W09	ELY., 10μF/16V
C511	08T90316F16	TF, 8200pF
E511	23T25149W09	ELY., 10μF/16V
C512	08T90316F16	TF, 8200pF
E512	23T25149W09	ELY., 10μF/16V
C513	08S53332F14	CP., 18pF
C514	08S65128F17	CP., 18pF
C515	08T90316F31	TF, 0.15μF
C516	08T90316F31	TF, 0.15μF
C517	08T90316F31	TF, 0.15μF
E517	23T25149W09	ELY., 10μF/16V
C518	08T90316F31	TF, 0.15μF
E518	23T25149W09	ELY., 10μF/16V
C519	08S65128F17	CP., 18pF
E519	23T25149W09	ELY., 10μF/16V

Symbol No.	Part No.	Description
C520	08S65128F17	CP., 18pF
E520	23T25149W09	ELY., 10μF/16V
C521	08S53332F14	CP., 18pF
E521	23T25149W09	ELY., 10μF/16V
C522	08S53332F14	CP., 18pF
E522	23T25149W09	ELY., 10μF/16V
E523	23T25149W09	ELY., 10μF/16V
E524	23T25149W09	ELY., 10μF/16V
E529	23T25149W09	ELY., 10μF/16V
E530	23T25149W09	ELY., 10μF/16V
E531	23T25149W09	ELY., 10μF/16V
E532	23T25149W09	ELY., 10μF/16V
E533	23T25149W09	ELY., 10μF/16V
E534	23T25149W09	ELY., 10μF/16V
E535	23T25149W09	ELY., 10μF/16V
E536	23T25149W09	ELY., 10μF/16V
E541	23T25149W09	ELY., 10μF/16V
E542	23T25149W09	ELY., 10μF/16V
E543	23T25149W12	ELY., 47μF/16V
E544	23T25149W12	ELY., 47μF/16V
E545	23T25149W09	ELY., 10μF/16V
E546	23T25149W09	ELY., 10μF/16V
C705	08S65128F17	CP., 18pF
E705	23T25149W12	ELY., 47μF/16V
C706	08S65128F17	CP., 18pF
E706	23T25149W12	ELY., 47μF/16V
C707	08S65128F17	CP., 18pF
E707	23T25149W09	ELY., 10μF/16V
C708	08S65128F17	CP., 18pF
E708	23T25149W09	ELY., 10μF/16V
C709	08T90316F39	TF, 0.68μF
E709	23T25149W09	ELY., 10μF/16V
C710	08T90316F39	TF, 0.68μF
E710	23T25149W09	ELY., 10μF/16V
E711	23T25149W09	ELY., 10μF/16V
E712	23T25149W09	ELY., 10μF/16V
E713	23T25149W09	ELY., 10μF/16V
E714	23T25149W09	ELY., 10μF/16V
E717	23T25149W09	ELY., 10μF/16V
E718	23T25149W09	ELY., 10μF/16V
E901	23T00149L25	ELY., 100μF/16V
E902	23S57007F09	ELY., 10μF/16V
E903	23S82482F02	ELY., 100μF/16V

Symbol No.	Part No.	Description
Resistors (All resistors are chip 1/8W ± 5% unless otherwise noted.)		
R105	06S53330F73	6.8K ohm
R108	06S81094F65	M.F, 1K ohm 1/2W
R110	06S53330F21	47 ohm
R301	06S64995F76	9.1K ohm 1/10W
R302	06S64995F76	9.1K ohm 1/10W
R303	06S64995F76	9.1K ohm 1/10W
R304	06S64995F76	9.1K ohm 1/10W
R305	06S64995F84	20K ohm 1/10W
R306	06S64995F84	20K ohm 1/10W
R307	06S64995F84	20K ohm 1/10W
R308	06S64995F84	20K ohm 1/10W
R309	06S64995F29	100 ohm 1/10W
R310	06S53330F29	100 ohm
R315	06S53330F85	22K ohm
R316	06S53330F85	22K ohm
R317	06S64995F29	100 ohm 1/10W
R318	06S53330F29	100 ohm
R319	06S53330F77	10K ohm
R320	06S53330F77	10K ohm
R321	06S53330F88	30K ohm
R322	06S53330F88	30K ohm
R323	06S64995F77	10K ohm 1/10W
R324	06S53330F77	10K ohm
R325	06S53330F77	10K ohm
R326	06S53330F77	10K ohm
R327	06S53330F59	1.8K ohm
R328	06S64995F59	1.8K ohm 1/10W
R329	06S53330F74	7.5K ohm
R330	06S53330F74	7.5K ohm
R331	06S53330F59	1.8K ohm
R332	06S53330F59	1.8K ohm
R333	06S53330F50	750 ohm
R334	06S53330F50	750 ohm
R335	06S53330F70	5.1K ohm
R336	06S53330F70	5.1K ohm
R337	06S53330F77	10K ohm
R338	06S53330F77	10K ohm
R339	06S64995F71	5.6K ohm 1/10W
R340	06S53330F71	5.6K ohm
R341	06S64995F77	10K ohm 1/10W
R342	06S64995F77	10K ohm 1/10W
R351	06S53330F69	4.7K ohm
R352	06S53330F69	4.7K ohm
R353	06S53330F77	10K ohm
R354	06S53330F77	10K ohm
R355	06S53330F69	4.7K ohm
R356	06S64995F69	4.7K ohm 1/10W
R357	06S64995F77	10K ohm 1/10W
R358	06S64995F77	10K ohm 1/10W
R371	06S64995F85	22K ohm 1/10W

Symbol No.	Part No.	Description
R372	06S53330F85	22K ohm
R373	06S53330F85	22K ohm
R374	06S53330F85	22K ohm
R375	06S53330F87	27K ohm
R376	06S53330F87	27K ohm
R377	06S53330F87	27K ohm
R378	06S53330F87	27K ohm
R379	06S53330F87	27K ohm
R380	06S53330F87	27K ohm
R381	06S53330F85	22K ohm
R382	06S53330F85	22K ohm
R383	06S53330F85	22K ohm
R384	06S53330F85	22K ohm
R385	06S53330F85	22K ohm
R386	06S53330F85	22K ohm
R387	06S53330F59	1.8K ohm
R388	06S53330F59	1.8K ohm
R389	06S53330F50	750 ohm
R390	06S53330F50	750 ohm
R391	06S53330F27	82 ohm
R392	06S53330F27	82 ohm
R501	06S53330F45	470 ohm
R502	06S64995F45	470 ohm 1/10W
R503	06S64995F83	18K ohm 1/10W
R504	06S64995F83	18K ohm 1/10W
R505	06S64995F88	30K ohm 1/10W
R506	06S64995F88	30K ohm 1/10W
R507	06S64995F85	22K ohm 1/10W
R508	06S64995F85	22K ohm 1/10W
R509	06S53330F29	100 ohm
R510	06S53330F29	100 ohm
R515	06S53330F85	22K ohm
R516	06S53330F85	22K ohm
R517	06S53330F77	10K ohm
R518	06S53330F77	10K ohm
R519	06S53330F88	30K ohm
R520	06S53330F88	30K ohm
R521	06S53330F77	10K ohm
R522	06S53330F77	10K ohm
R523	06S64995F77	10K ohm 1/10W
R524	06S64995F77	10K ohm 1/10W
R525	06S53330F29	100 ohm
R526	06S53330F29	100 ohm
R527	06S53330F59	1.8K ohm
R528	06S53330F59	1.8K ohm
R529	06S53330F74	7.5K ohm
R530	06S53330F74	7.5K ohm
R531	06S53330F59	1.8K ohm
R532	06S53330F59	1.8K ohm
R533	06S53330F77	10K ohm
R534	06S53330F77	10K ohm
R535	06S53330F88	30K ohm

Symbol No.	Part No.	Description
R536	06S53330F88	30K ohm
R537	06S53330F77	10K ohm
R538	06S64995F77	10K ohm 1/10W
R539	06S53330F77	10K ohm
R540	06S53330F77	10K ohm
R541	06S64995F44	430 ohm 1/10W
R542	06S53330F44	430 ohm
R543	06S53330F74	7.5K ohm
R544	06S64995F74	7.5K ohm 1/10W
R545	06S53330F44	430 ohm
R546	06S53330F44	430 ohm
R549	06S64995F77	10K ohm 1/10W
R550	06S53330F77	10K ohm
R561	06S53330F69	4.7K ohm
R562	06S53330F69	4.7K ohm
R563	06S53330F77	10K ohm
R564	06S53330F77	10K ohm
R565	06S64995F69	4.7K ohm 1/10W
R566	06S64995F69	4.7K ohm 1/10W
R567	06S64995F77	10K ohm 1/10W
R568	06S64995F77	10K ohm 1/10W
R577	06S53330F29	100 ohm
R578	06S53330F29	100 ohm
R579	06S53330F69	4.7K ohm
R580	06S53330F69	4.7K ohm
R581	06S53330F77	10K ohm
R582	06S53330F77	10K ohm
R583	06S53330F69	4.7K ohm
R584	06S53330F69	4.7K ohm
R585	06S64995F77	10K ohm 1/10W
R586	06S64995F77	10K ohm 1/10W
R601	06S53330F85	22K ohm
R602	06S64995F85	22K ohm 1/10W
R603	06S53330F85	22K ohm
R604	06S53330F85	22K ohm
R605	06S53330F85	22K ohm
R606	06S53330F85	22K ohm
R607	06S53330F85	22K ohm
R608	06S53330F85	22K ohm
R609	06S64995F85	22K ohm 1/10W
R610	06S53330F85	22K ohm
R611	06S53330F85	22K ohm
R612	06S53330F85	22K ohm
R613	06S53330F85	22K ohm
R614	06S53330F85	22K ohm
R615	06S53330F85	22K ohm
R616	06S53330F85	22K ohm
R617	06S64995F85	22K ohm 1/10W
R618	06S53330F85	22K ohm
R619	06S53330F85	22K ohm
R620	06S64995F85	22K ohm 1/10W
R621	06S53330F59	1.8K ohm

Symbol No.	Part No.	Description
R622	06S53330F59	1.8K ohm
R623	06S53330F59	1.8K ohm
R624	06S53330F59	1.8K ohm
R701	06S64995F85	22K ohm 1/10W
R702	06S64995F85	22K ohm 1/10W
R703	06S53330F85	22K ohm
R704	06S64995F85	22K ohm 1/10W
R705	06S64995F89	33K ohm 1/10W
R706	06S64995F89	33K ohm 1/10W
R713	06S53330F60	2K ohm
R714	06S53330F60	2K ohm
R715	06S53330F77	10K ohm
R716	06S53330F77	10K ohm
R717	06S64995F77	10K ohm 1/10W
R718	06S64995F77	10K ohm 1/10W
R719	06S64995F82	16K ohm 1/10W
R720	06S64995F82	16K ohm 1/10W
R721	06S53330F81	15K ohm
R722	06S53330F81	15K ohm
R723	06S64995F77	10K ohm 1/10W
R724	06S64995F77	10K ohm 1/10W
R725	06S64995F81	15K ohm 1/10W
R726	06S64995F81	15K ohm 1/10W
R735	06S53330F85	22K ohm
R736	06S64995F85	22K ohm 1/10W
R751	06S53330F82	16K ohm
R752	06S53330F82	16K ohm
R753	06S53330F82	16K ohm
R754	06S53330F82	16K ohm
R755	06S64995F82	16K ohm 1/10W
R756	06S53330F82	16K ohm
R901	06S53330F79	12K ohm
R902	06S53331F02	100K ohm
R903	06S64995F69	4.7K ohm 1/10W
R904	06S64995F60	2K ohm 1/10W
R905	06S64995F94	51K ohm 1/10W
R906	06S64996F02	100K ohm 1/10W
R907	06S64995F60	2K ohm 1/10W
R908	06S64996F26	1M ohm 1/10W
R909	06S64996F22	680K ohm 1/10W
R910	06S53330F29	100 ohm

Symbol No.	Part No.	Description
Level Control P. C. Board		
Capacitors		
E313	23T25149W09	ELY., 10μF/16V
E314	23T25149W09	ELY., 10μF/16V
E315	23T25149W09	ELY., 10μF/16V
E316	23T25149W09	ELY., 10μF/16V
E326	23T25149W09	ELY., 10μF/16V
E325	23T25149W09	ELY., 10μF/16V
E327	23T25149W09	ELY., 10μF/16V
E328	23T25149W09	ELY., 10μF/16V
E515	23T25149W09	ELY., 10μF/16V
E516	23T25149W09	ELY., 10μF/16V
E525	23T25149W09	ELY., 10μF/16V
E526	23T25149W09	ELY., 10μF/16V
E527	23T25149W09	ELY., 10μF/16V
E528	23T25149W09	ELY., 10μF/16V
E537	23T25149W09	ELY., 10μF/16V
E538	23T25149W09	ELY., 10μF/16V
E539	23T25149W09	ELY., 10μF/16V
E540	23T25149W09	ELY., 10μF/16V
E715	23T25149W09	ELY., 10μF/16V
E716	23T25149W09	ELY., 10μF/16V
Resistors (All resistors are chip 1/8W ± 5% unless otherwise noted.)		
R801	06S53330F69	4.7K ohm
R802	06S53330F69	4.7K ohm
R803	06S53330F69	4.7K ohm
R804	06S53330F69	4.7K ohm
R805	06S53330F69	4.7K ohm
R806	06S53330F69	4.7K ohm
R807	06S53330F69	4.7K ohm
R808	06S53330F69	4.7K ohm
R809	06S53330F69	4.7K ohm
R810	06S53330F69	4.7K ohm
R811	06S53330F69	4.7K ohm
R812	06S53330F69	4.7K ohm
VR801	18T35375W02	Volume, 10K ohm×2
VR802	18T35375W02	Volume, 10K ohm×2
VR803	18T35375W02	Volume, 10K ohm×2
VR804	18T35375W02	Volume, 10K ohm×2
VR805	18T35375W02	Volume, 10K ohm×2
VR806	18T35375W02	Volume, 10K ohm×2

Symbol No.	Part No.	Description
Frequency Control (L) P. C. Board		
Capacitors		
C503	08T90316F39	TF, 0.68μF
C504	08T90316F39	TF, 0.68μF
C505	08T90316F39	TF, 0.68μF
C506	08T90316F39	TF, 0.68μF
C701	08T90316F39	TF, 0.68μF
C702	08T90316F39	TF, 0.68μF
C703	08T90316F34	TF, 0.27μF
C704	08T90316F34	TF, 0.27μF
Resistors (All resistors are chip 1/8W ± 5% unless otherwise noted.)		
R511	06S53330F57	1.5K ohm
R512	06S53330F57	1.5K ohm
R513	06S53330F63	2.7K ohm
R514	06S53330F63	2.7K ohm
R709	06S53330F64	3K ohm
R710	06S53330F64	3K ohm
R711	06S53330F64	3K ohm
R712	06S53330F64	3K ohm
VR204	18T35376W01	Volume, 5K ohm×4
VR205	18T35376W02	Volume, 15K ohm×4
VR206	18T35376W01	Volume, 5K ohm×4
Frequency Control (R) P. C. Board		
Capacitors		
C305	08T90316F31	TF, 0.15μF
C306	08T90316F31	TF, 0.15μF
C307	08T90316F31	TF, 0.15μF
C308	08T90316F31	TF, 0.15μF
Resistors (All resistors are chip 1/8W ± 5% unless otherwise noted.)		
R311	06S53330F59	1.8K ohm
R312	06S53330F59	1.8K ohm
R313	06S53330F52	910 ohm
R314	06S53330F52	910 ohm
VR201	18T35376W01	Volume, 5K ohm×4
VR202	18T35376W02	Volume, 15K ohm×2 30K ohm×2
VR203	18T35376W01	Volume, 5K ohm×4
RCA Out P. C. Board		
Transistors		
Q301	48T63788F04	CP., 2SD1328
Q302	48T63788F04	CP., 2SD1328
Q303	48T63788F04	CP., 2SD1328
Q304	48T63788F04	CP., 2SD1328
Q503	48T63788F04	CP., 2SD1328
Q504	48T63788F04	CP., 2SD1328
Q505	48T63788F04	CP., 2SD1328
Q506	48T63788F04	CP., 2SD1328
Resistors (All resistors are chip 1/8W ± 5% unless otherwise noted.)		
R343	06S53330F85	22K ohm
R344	06S53330F85	22K ohm
R345	06S53330F73	6.8K ohm
R346	06S53330F73	6.8K ohm
R347	06T70072F51	820 ohm 1/4W
R348	06T70072F51	820 ohm 1/4W
R349	06T70072F35	180 ohm 1/4W
R350	06T70072F35	180 ohm 1/4W
R359	06S53330F85	22K ohm
R360	06S53330F85	22K ohm
R361	06S53330F73	6.8K ohm
R362	06S53330F73	6.8K ohm
R363	06T70072F51	820 ohm 1/4W
R364	06T70072F51	820 ohm 1/4W
R365	06T70072F35	180 ohm 1/4W
R366	06T70072F35	180 ohm 1/4W
R569	06S53330F85	22K ohm
R570	06S53330F85	22K ohm
R571	06S53330F73	6.8K ohm
R572	06S53330F73	6.8K ohm
R573	06T70072F51	820 ohm 1/4W
R574	06T70072F51	820 ohm 1/4W
R575	06T70072F35	180 ohm 1/4W
R576	06T70072F35	180 ohm 1/4W
R587	06S53330F85	22K ohm
R588	06S53330F85	22K ohm
R589	06S53330F73	6.8K ohm

Symbol No.	Part No.	Description
R590	06S53330F73	6.8K ohm
R591	06T70072F51	820 ohm 1/4W
R592	06T70072F51	820 ohm 1/4W
R593	06T70072F35	180 ohm 1/4W
R594	06T70072F35	180 ohm 1/4W

RCA Out & In P. C. Board

Transistors

Q501	48T63788F04	CP., 2SD1328
Q502	48T63788F04	CP., 2SD1328
Q701	48T63788F04	CP., 2SD1328
Q702	48T63788F04	CP., 2SD1328

Resistors (All resistors are chip 1/8W ± 5% unless otherwise noted.)

R551	06S53330F85	22K ohm
R552	06S53330F85	22K ohm
R553	06S53330F73	6.8K ohm
R554	06S53330F73	6.8K ohm
R555	06T70072F51	820 ohm 1/4W
R556	06T70072F51	820 ohm 1/4W
R557	06T70072F35	180 ohm 1/4W
R558	06T70072F35	180 ohm 1/4W
R727	06S53330F85	22K ohm
R728	06S53330F85	22K ohm
R729	06S53330F73	6.8K ohm
R730	06S53330F73	6.8K ohm
R731	06T70072F51	820 ohm 1/4W
R732	06T70072F51	820 ohm 1/4W
R733	06T70072F35	180 ohm 1/4W
R734	06T70072F35	180 ohm 1/4W

Symbol No.	Part No.	Description

Miscellaneous

D101	48C40235G02	Diode, 10E2
ET801	29T94650F01	Block, Terminal (3P)
F101	65S58596F01	Fuse, Auto (3A)
JK801	09T81475F04	Jack, RCA OUTPUT (CH1/2-HIGH/LOW)
JK802	09T81475F04	Jack, RCA OUTPUT (CH3/4-HIGH/LOW)
JK803	09T81475F04	Jack, RCA OUTPUT (CH3/4-LOW, SUBWOOFER)
JK804	09T81475F04	Jack, RCA INPUT (CH1/2, CH3/4)
LD101	48T35384W01	LED, SLB-26 (GRN)

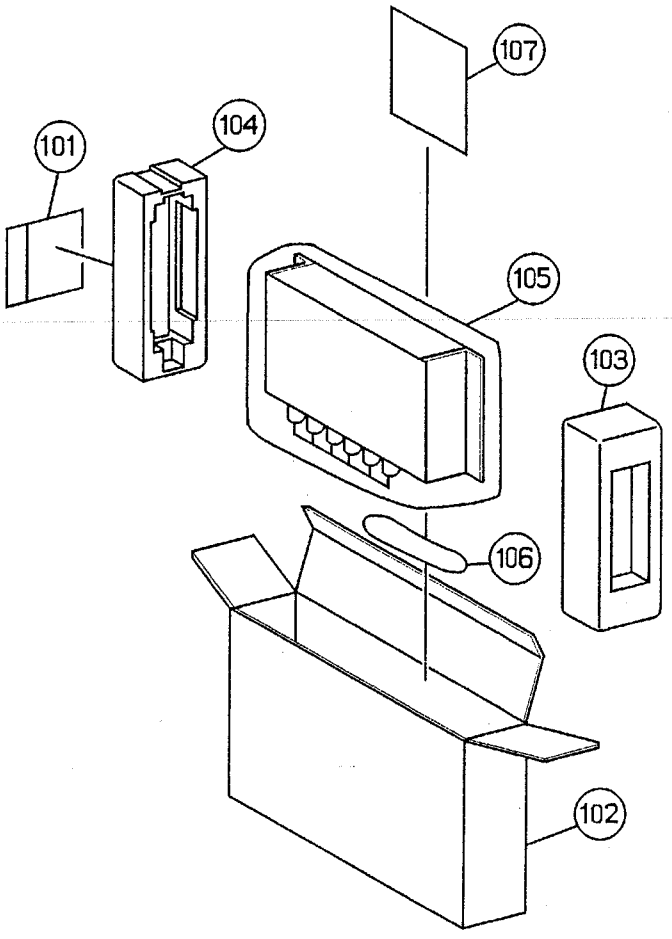
Packing Assembly Parts List

Symbol No.		Part No.	Description
	101	01V94400F15	Assy., Kit Installation
△	101-1	03S40018G07	Screw, Tapping (M4×14)
△	101-2	65S58596F01	Fuse, Auto (3A)
△	101-3	15A81064F03	Housing, Rubber
	102	56S22119W92	Carton, Packing (Individual)
	103	56D73810F01	Tray, Packing (L)
	104	56D73810F02	Tray, Packing (R)
	105	56B72811F04	Sack, Polyethylene
	106	01T94431F01	Assy., Kit Wire (3P)
○	107	68P22493W26	Owner's, manual
△	107	68P32052W20	Owner's, manual
●	107-1	68P22493W26	Owner's, manual
●	107-2	68P32052W30	Owner's, manual

Symbol No.	Part No.	Description

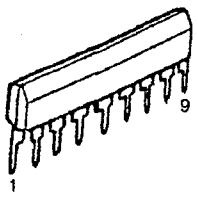
Note : ○ : For North American model only.
△ : For General Foreign model only.
● : For Canadian model only.
Others : Common.

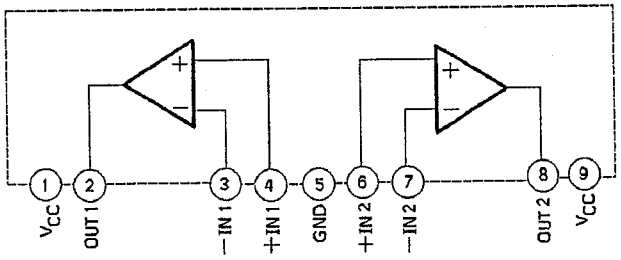
Packing Method View



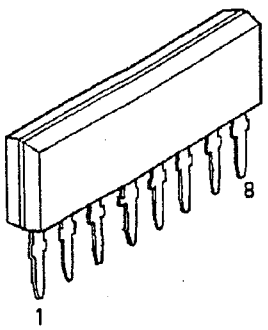
Semi - Conductor Lead Identifications

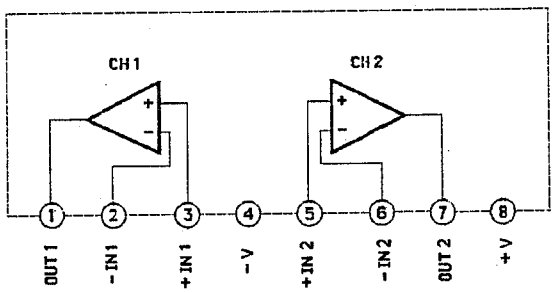
μPC4570HA : IC302~309, 502~508, 510~514, 703~706



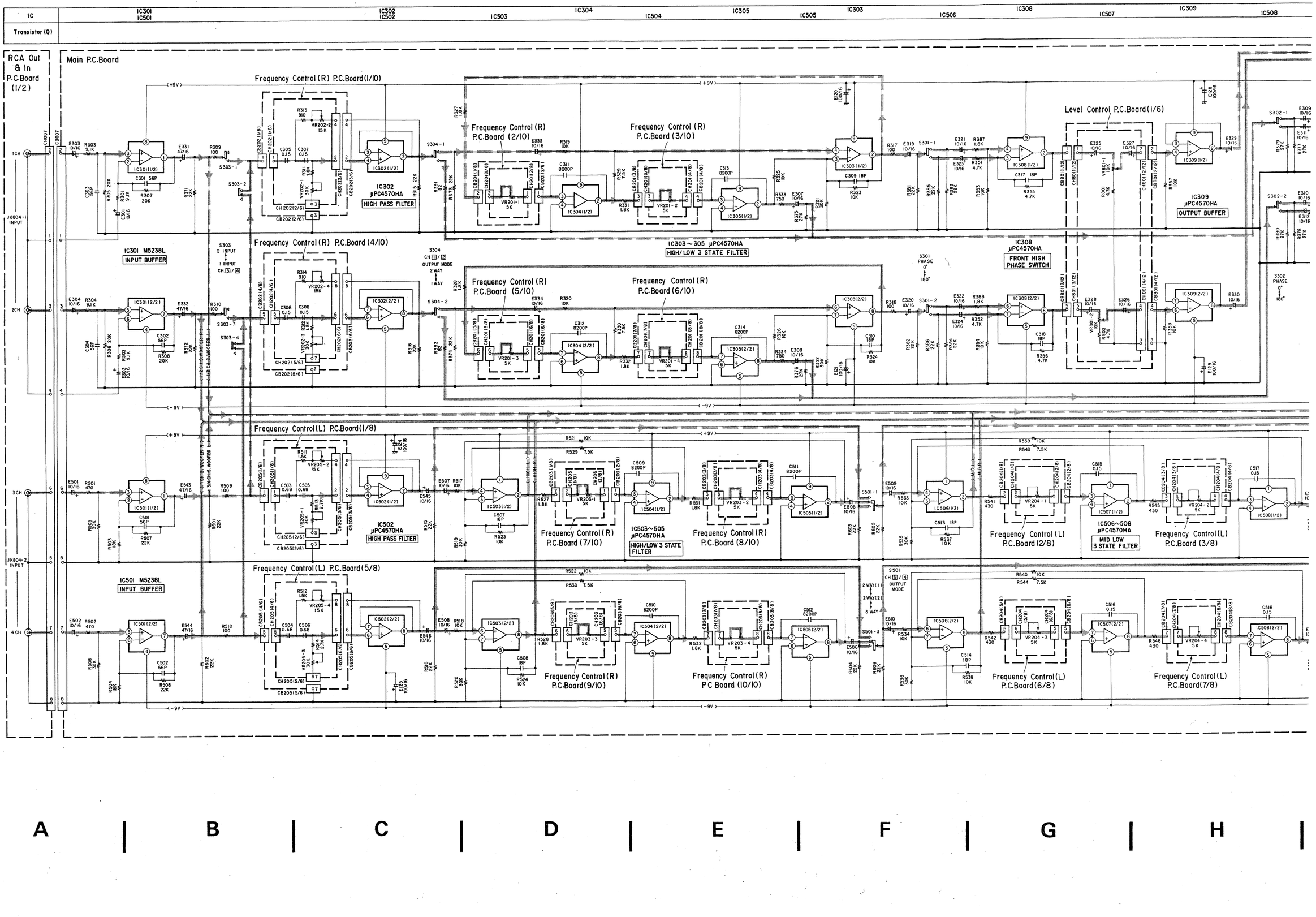


M5238L : IC301, 501

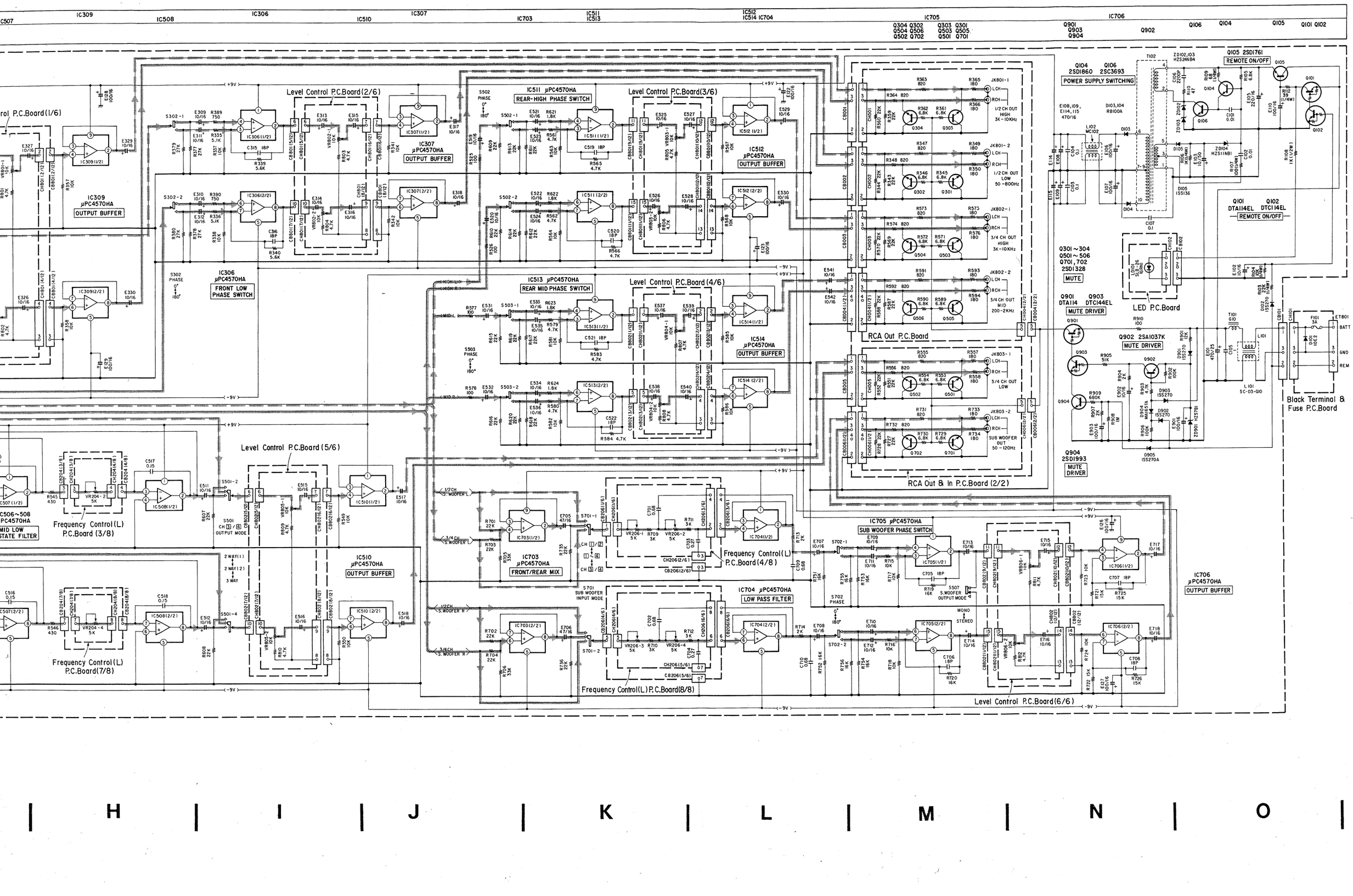




Schematic Diagram (Refer to page 25 for IC's and transistors voltage values.)



NOTE:
1. All resistance values are in ohms. K= 1,000 M= 1,000,000
2. All capacitance values are in microfarads. P= 1/1,000,000



H I J K L M N O